CATÓLICA LISBON SCHOOL OF BUSINESS AND ECONOMICS

Novabase Equity Valuation

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Abstract

Title: Novabase – Equity Research

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The objective of this project is to obtain the Novabase's price per share at 31st of December 2013. Our main challenge during this dissertation was to define the most suitable valuation model, taking in consideration the specificities of each model and the assumptions inherent in the decision of the model chosen. We decide to explore the Discounted Cash Flow valuation, through Free Cash Flow to the Firm approach and Relative valuation, due to the perspective of growth and characteristics of the industry in which Novabase operates.

Despite the fact that similar prices were achieved, we find more appropriate to select the Discounted Cash-Flow valuation, reaching a target price of 3,55€. Once, the price per share of Novabase, at 31st of December 2013 was 2,51€, we recognize an upside of 41% and consequently our recommendation is to Buy.

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Introduction

Valuation of a company has been acquiring an extreme importance in our society not only in investment decisions by investors and shareholders, but also in every decision we make in the financial world. It plays a crucial role in the decision process in portfolio management, merger and acquisition analysis and in corporate finance strategic decisions.

Our main goal is to achieve the value of Novabase's price per share, at 31st of December 2013. Consequently, the value of the stock price achieved will be compared to the Caixa BI Equity Daily, from 7th of February 2014.

Why Novabase? The company operates in a sector where I have a personal interest: IT. On the other hand Novabase has been conquering a relevant international exposure increasing the challenge the company has in the future.

After the decision in terms of the company I had to decide how to compare the result achieved with similar analysis done by specialized companies. Reputation, credibility and availability of the information were the main criteria to consider Caixa BI valuation.

The project was structured through the 3 following sections:

- Section 1: Literature Review
  - Description of the possible valuation models, and its advantages and disadvantages;
  - Focus on understanding the suitability of each model, in order to justify our choice to value Novabase stock price, according to its industry sector and main characteristics.

- Section 2: Company Presentation
  - Novabase's description in terms of history and business model;
  - Business segments, operational sectors, financial performance and stock performance;
  - The objective of this section is to make it easier to understand the subsequent assumptions that will be presented in Section 3.

- Section 3: Company Valuation
  - Design of the different assumptions, based on the valuation models already chosen and the target prices achieved;
  - Sensitivity analysis for the different assumptions considered;
  - Comparison of the result achieved with the one defined in Caixa BI Research Note.

1. Literature Review

"What is the 'fair' price to pay for an asset that has a set of uncertain future cash-flows?"

Valuation for Mergers and Acquisitions, 2013 by Pearson Educational Inc.

Valuation has been acquiring a countless importance in our society not only in investment decisions for investors and shareholders, but in every decision we need to make in the financial world. It plays a crucial role in our business daily routine, once it allows us to perform a better result in terms of decisions related to portfolio management, merger and acquisition analysis and in corporate finance strategic decisions.

According to Damodaran, "knowing the value of an asset and what determines that value is the prerequisite for intelligent decision making". Meaning that, more than knowing the value of a certain asset, we need to be able to understand its components as well as the characteristics and value of each component alone, in order to reach the most precise value of the asset.

On the other hand, it must be taken into consideration that valuation depends on several assumptions that apparently reflect the future expectations but can be immediately outdated due to the volatility of stock markets. The assumptions considered to calculate the value of an asset are just a sort of beliefs, in a cert period of time, that depend from investor to investor.

Keeping this in mind, the value of the company combines two important drivers: firstly the value of the company in the present and secondly the assumptions to achieve the value of the future cash-flows.

There are several valuation models. Their suitability depends on the industry, characteristics, life-cycle period of each company as well as the analysts' preferences and expertise. In line with Damodaran (1994), the value of a firm can be obtained through three different approaches:

- Discounted Cash-flow Valuation
- Relative Valuation
- Contingent Claim Valuation

The Economic Income Model stated by Barbara Petitt and Kenneth Ferris in *Valuation for Merger and Acquisitions (2013)* will also be considered. The authors describe that valuation models can be divided according to two key categories: 1) Whether the valuation method is absolute or relative; 2) Whether valuation methods rely on cash-flows or on other variables.

Through the table below[1], it can be easily exhibited this subdivision of valuation methods, achieving the four presented subgroups:

	Absolute Valuation Models	Relative Valuation Models
Valuation methods that rely on Cash-Flows	**Discounted Cash flow Models** - Free Cash-Flow to the Firm Model - Free Cash-Flow to the Equity Model - Adjusted Present Value Model **Option Pricing Model** - Real Option Analysis	**Price Multiples** - Price-to-cash-flow ratio
Valuation Methods that rely in other variable than Cash-Flows	**Economic Income Models** - Economic Value Analysis	**Price Multiples** - Price-to-Earnings ratios (P/E ratio; P/EBIT ratio; P/EBITDA ratio) - Price-to-Sales ratio - Price-to-Book ratio **Enterprise Multiples** - EV/EBITDA multiple - EV/Sales multiple

Table 1 – Valuation Methods (Source: *Valuation for Mergers and Acquisitions (2013)* by Pearson Educational Inc.)

[1] *Valuation for Mergers and Acquisitions (2013)* by Pearson Educational Inc.

1.1 Discounted Cash-flow Valuation

The Discounted Cash-Flow Valuation provide us the value of a company today, being "equal to the present value of the future (but uncertain) cash-flows to generated by the company's operations, discounted at a rate that reflects the riskiness (or uncertainty) of those cash-flows".[2]

According to Pablo Fernandez (2013), "Cash-flow discounting models are based on the detail, careful forecasts for each period, of each of financial items related with the generation of cash-flows corresponding to the company's operations".[3]

In accordance with Damodaran, the formula to achieve the present value is:

$$Present\ Value = \sum_{t=1}^{n} \frac{Expected\ CF_t}{(1+r)^t}$$

Where [r] represents the discount rate, [n] is expected number of years of the life of the asset and [$Expected\ CF_t$] is the Cash-flow which the firm is expected to generate in the period t.

This method involves an extreme level of uncertainty due to the assumptions that might be considered while computing expected cash-flows and discount rate.

When using this approach, we are able to achieve the value of a firm through two different methods: Free Cash-Flow to the Firm and Free Cash-flow to the Equity.

In the first method, the value of the entire firm is achieved by discounting the cash-flows of the firm as whole to the Weighted Average Cost of Capital (WACC). Applying the second method, the Equity value can be reached by discounting the cash flows related to Equity only at the required rate of return for investors to consider an investment in the firm, which is the cost of Equity (K_E).

[2] *Valuation for Mergers and Acquisitions (2013)* by Pearson Educational Inc.
[3] Pablo Fernandez (2013)

Before choosing one of the two methods, several aspects should be clearly clarified: [4]

- Understand the consistency of real and nominal interest rates and cash-flows;
- Predict the consistency of the use of assumptions while computing future earnings and cash flows;
- The different conditions and characteristics of each firm allied to the inherent risk of the undertaken assumptions.

Discounted Cash-flow Valuation should be used to value the firms that present positive cash-flows and that are expected to maintain positive cash flows in the future. Companies that present negative cash flows, cyclical companies and firms characterized by having unutilized assets, represent a threat to the accuracy of the value obtained through this model. The firm value achieved over one of these conditions might be misleading due to the high probability of bankruptcy costs and overvaluation of assets.

Upon this statement, discount cash-flow approach is suitable when considering companies with growth perspectives as well as companies with several units of operation and/or different currencies within the same service line.

Advantages and Drawbacks of Discounting Valuation Model

This valuation model provides the intrinsic value of the company. Compared to the existing valuation methods, this one returns the closest approximation to the real value of the firm.

Despite of being "less exposed to market moods and perceptions"[5] once it is based on assets fundamentals, it requires higher complexity due to the prerequisite of higher number of inputs and assumptions. Moreover, it can be easily manipulated inducing in over or under-estimation of the stock price.

[4] Damodaran Presentation: http://people.stern.nyu.edu/adamodar/pdfiles/basics.pdf
[5] Damodaran Presentation: http://people.stern.nyu.edu/adamodar/pdfiles/eqnotes/approach.pdf

1.1.1 Free Cash-Flow to the Firm Approach

As previously mentioned, the Free Cash-Flow to the Firm provides us the value of the entire firm through the estimation of future cash-flows and discounting them to the Weighted Average Cost of Capital (WACC).

$$Value\ of\ the\ Firm = \sum_{t=1}^{n} \frac{CF\ to\ Firm_{\ t}}{(1+WACC)^t}$$

Where [$CF\ to\ Firm_{\ t}$] is the expected cash-flow in period t and [WACC] is the Weighted Average Cost of Capital - required rate of return to the firm.

To ensure the understandability of this model, these two components will be carefully detailed:

1.1.1.1 Expected Cash-Flows to the Firm:

The amount of free cash flow is the operating cash flow of the firm. It is the "cash generated by operations without taking into account the borrowings (financial debt), after tax. It is the cash for the shareholders if the company has no debt."[6]

In order to achieve the value of future cash flows, assumptions on growth rate of sales and associated costs should be done. The greater the knowledge of the firm and its sector, the more precise assumptions we will have.

In accordance with Damodaran (1994), there are two different ways to achieve the value of Free Cash-Flow to the Firm: "One way is to cumulate the cash-flows to the different claimholders (i.e.: Equity investors, debt holders and preferred stockholders) in the firm. The other approach (…) uses the earnings before interest and taxes"[7].

Taking into account the complexity and uncertainty of the first approach, we will merely consider the second approach. Thus, the formula regarding the chosen approach is:

$$FCFF = EBIT(1-t) + Depreciation\ and\ Amortization - CAPEX - \Delta\, WC$$

[6] Pablo Fernandez (2013)
[7] Damodaran (1994)

Where [$EBIT$] represents the Earnings Before Interest Taxes, [t] is the tax rate assumed, [$D\&A$] is the amount of Depreciation and Amortizations of the assets, [$CAPEX$] traduces the amount of capital expenditure and [$\Delta\ WC$] is the change in Working Capital of the firm.

Under this approach, the most important components used to compute the cash-flow value are: the amount of Depreciation and Amortization, the total of Capital Expenditures and Change in Working Capital.

I. Depreciation and Amortization (D&A):

The first component "provides a benefit by reducing the taxable income of the firm and creates savings in taxes that is a function of the tax rate of the firm"[8], so there will be an incentive for the stakeholders to increase the value of this driver.

II. Capital Expenditures (CAPEX):

The value of Capital Expenditures should always be consistent with the growth rate of the company. This component represents the investment that the company does either in fixed assets or to improve the existing assets. According to Damodaran (1994), several analysts consider that "depreciation is equal to capital spending for firms in a stable-growth phase"[9].

III. Change in Working Capital (ΔWC):

The Change in Working Capital value results from the difference between current assets and current liabilities. Additionally, the change in working capital is computed through the difference between of the value of WCN of one year with the previous one. Thus, an increase in the level of WCN will negatively influence the level of cash-flows due to the cash outflow and the other way around.

Having these parameters computed, the value of cash-flows of the firm will be easily calculated.

[8] Damodaran (1994)
[9] Damodaran (1994)

An additional way to compute the FFCF, is to "add up the cash-flows to the claim holders, which would include cash-flow to equity (defined either as Free Cash-Flows to Equity - FCFE or dividends), cash-flows to lenders (which would include principals payments, interest expenses and new debt issues) and the cash-flows to preferred stockholders (usually preferred dividends)."[10] This alternative approach requires higher complexity, however, is it useful when the value of the FCFE is primarily achieved.

The value of FCFF would be reached through the following procedure:

$$FCFF = FCFE + Interest\ Expenses\ (1 - t) + Principal\ Repayments - New\ Debt + Prefered\ Dividends$$

How to compute the terminal value - in order to guarantee the perpetuity of the value of the cash-flows?

Once the values of cash-flows cannot be estimated for each year and forever, the terminal value needs to be added, to reflect the value of the cash-flows computed in perpetuity. "It assumes that the cash flows of the firm will grow at a constant rate forever in a stable growth rate. With stable growth, the terminal value can be estimated using a perpetual growth model".[11]

Under this statement, the value of the firm will be computed as followed:

$$Value\ of\ the\ Firm = \sum_{t=1}^{n} \frac{CF_{\ t}}{(1+WACC)^t} + \frac{Terminal\ Value}{(1+WACC)^{t+1}}$$

Where Terminal Value is:

$$Terminal\ Value = \frac{FCFF_{t+1}}{(WACC - g)}$$

In which, [$FCFF\ t+1$] is the Free Cash Flow to the Firm next year, [$WACC$] will be subsequently explained and [g] is the growth rate in perpetuity.

[10] Damodaran: http://pages.stern.nyu.edu/~adamodar/pdfiles/valn2ed/ch15.pdf
[11] Damodaran: http://pages.stern.nyu.edu/~adamodar/New_Home_Page/valquestions/termvalapproaches.htm

Throughout this model, there is no need to distinguish between unleveraged and leveraged firm (as it happens in the Free Cash Flow to the Equity model), since the Free Cash Flow to the Firm is computed before debt payments. However, a change in the level of the debt will have an impact on the debt-to-equity ratio and consequently on the value of the discount rate of this model - WACC.

1.1.1.2 Weighted Average Cost of Capital (WACC):

The Weighted Average Cost of Capital is the cost of capital and instinctively the required rate of return of the firm. It comprises "the cost of different components of financing including debt, equity and hybrid securities used by the firm to fund its financial requirements"[12].

It can be achieved through the following formula:

$$WACC = K_e \times \frac{MV\ of\ Equity}{Enterprise\ Value} + K_d(1-t) \times \frac{MV\ of\ Debt}{Enterprise\ Value}$$

Where $[K_e]$ is the cost of Equity, [t] is the tax rate assumed, $[K_d]$ represents the cost of debt and $[MV]$ is the abbreviation of Market Value for Equity and Debt (depending which of them will be considered). Finally, Enterprise Value represents the sum of MV of Debt and MV of Equity.

The cost of debt assumed to compute the cost of capital is the "current cost to the firm of borrowing funds to finance projects"[13]. It is an extremely important driver, once it is influenced by interest rates volatility, default risk of the company and tax benefits associated with debt.

Additionally, another important component is the Market Value of Debt. It is "usually more difficult to obtain directly, since very few firms have all their debt in the form of bonds outstanding trading in the market; many firms have non-traded debt"[14].

[12] Damodaran (1994)
[13] Damodaran (1994)
[14] Damodaran: http://pages.stern.nyu.edu/~adamodar/New_Home_Page/valquestions/mktvalofdebt.htm

Finally, the notion of WACC implies intrinsic risk. Consequently, the lower the level of WACC, the higher the investment opportunities the company will be able to achieve.

This valuation method is “more straightforward to use when there is significant leverage or when leverage changes over time,” once the cash flow to the firm valuation is a cash prior to the debt payments. However, the cost of capital used to discount the free cash flow to the firm will need to be adjusted for changes in leverage.

1.1.2 Free Cash-Flow to the Equity Approach

The Free Cash-Flow to the Equity approach allows us to value the Equity value of a firm, by discounting the expected cash-flows to the cost of equity (K_e).

The following formula should be considered to achieve the equity value:

$$PV\ of\ CF\ to\ Equity = Value\ of\ the\ Equity\ = \sum_{t=1}^{n} \frac{CF\ to\ Equity_{\ t}}{(1+ke)^t}$$

Where $[CF\ to\ Equity_t]$ represents the expected cash flow that the company predicts to generate in the period t and $[K_e]$ is the required rate of return or cost of equity.

In order to pursue our study, it is important to clarify the meaning of these two components:

1.1.2.1 Expected Cash-Flows to the Equity:

The expected cash flows to the Equity is "the remaining cash-flows after operating expenses, interest and principal payments and any capital expenditure needed to maintain the growth rate in projected cash-flows"[15].

In accordance to Damodaran (1994), we should have different valuations when considering the cash-flows' estimation for unleveraged and leverage firms.

I. Unleveraged Firm:

The unleveraged firms are characterized by the inexistence of debt, meaning that the only source of financing of the company is the Equity.

Under this scenario, the formula to achieve the future cash-flows is:

$$FCFE = EBIT - Taxes + D\ \&\ A - CAPEX - \Delta WC$$

[15] Damodaran (1994)

Where [$EBIT$] is the Earnings Before Interest Taxes, [$D\&A$] is the amount of Depreciation and Amortization, [CAPEX] is the Capital Expenditures and [ΔWC] is the change in Working Capital (compared to the homologous period).

II. Leveraged Firm:

In the case of leveraged firms, the company presents a positive Debt Ratio, involving the payment of interests and principal repayments.

A leveraged firm finances its capital expenditures and working capital needs with debt (principal payments and interest associated). Consequently, the firm reduces the percentage that is financed by Equity.

The desired capital structure for a firm is achieved through the mix financing of debt and financing, of the capital expenditures and working capital needs.

In order to compute the cash-flows, the subsequent formula might be considered:

$$FCFE = EBIT - Interests\ Expenses - Taxes + D\ \&\ A - Prefered\ Dividends - CAPEX - \Delta WC - Principal\ Paymens + Proceeds\ from\ new\ debt\ issues$$

Where, the deduction of Interest Expenses, preferred dividends and principal payments, and the addition of proceeds from new debt issue represent the difference between an unleveraged and leveraged firm.

1.1.2.2 Cost of Equity (K_e):

The cost of Equity is the required return by investors to invest in a firm in a firm.

There are several aspects that might be taken into consideration while computing the required rate of return to the investors of the firm, such as:

- The cost of equity can assume different values when considering companies with different service lines;
- The cost of equity will be different for companies that operate in different countries due to the related risk - interest rates and/or risk premium.

Moreover, there are two alternative approaches to estimate the cost of equity:

I. Risk-and-return Model

I.I The Capital Asset Pricing Model:

The Capital Asset Pricing Model (CAPM) combines the expected return with risk measures.

It can be achieved through the following formula:

$$Cost\ of\ Equity = Rf + Equity\ Beta\ [E(R_m) - R_f]$$

Where [Rf] is the Risk-free Rate and [E(Rm)] is the expected market risk or expected return on the market index.

The risk free rate is the return of a certain asset considering that there is no risk associated with the investment. Whereas the market risk premium, represented by $[E(R_m) - R_f]$, is given by the difference between market risk premium and the risk free rate.

An additional component that should be considered is the Country Risk Premium. It represents the risk of the specific conditions for each country, including political, economic, geographical, etc. It will be directly influencing the investors' decisions as well as the inherent cost of Equity.

Under this statement, the cost of Equity will be achieved through the following formula:

$$Cost\ of\ Equity = R_f + \beta_e\left[E(R_m) - R_f\right] + Country\ Risk\ Premium$$

There are several assumptions when using this model. It assumes perfect market conditions whereas the investors have similar expectations about expected returns; the financial assets are traded at a risk-free rate; the inexistence of transaction costs, among others.

Under these assumptions, the "nondiversifiable risk for any asset can be measured by the covariance of its returns with the return of market index, which is defined to be the asset's beta"[16] expressed in the formula above.

The beta of the company is achieved through the combination of three variables, namely: the type of business, the level of operating leverage and the financial leverage. The value of beta will be higher in cases where the company is more sensitive to market changes and conditions; additionally the value of the beta will be higher if the company has higher operating leverage and higher level of financial leverage, representing an increase in the level of fixed costs and in the level of debt, respectively.

Furthermore, to guarantee the accuracy of the value computed through CAPM Model, historical data should be used where market risk-premium is determined as the "difference between average returns on the stocks and the average returns on risk-free securities over the measurement period"[17].

I.II. The Arbitrage Pricing Model:

This model relies on the same rationale as CAPM, where "investors get rewarded for taking on non-diversifiable risk (…) The APM relates the expected returns to economic factors, with a beta specific to each factor"[18].

[16] Damodaran (1994)
[17] Damodaran (1994)
[18] Damodaran (1994)

The presented model implies a deep knowledge of the factors that drive the company and the associated betas. Taking into account the complexity and the high number of the factors that influence the risk of the company, this model will not be applied throughout this Novabase Valuation.

II. Dividend-growth Model

The Dividend-growth model assumes a stable constant growth rate of the firm, meaning that the growth rate of the firm cannot vary significantly from nominal growth rate of the economy (or country).

If the company satisfies the above condition, the formula to be applied should be the following:

$$Cost\ of\ Equity\ = \frac{DPS1}{P0} + g$$

Where [$P0$] is the price of the stock today, [$DPS1$] is the expected dividends per share one year from now, and [g] is the growth rate of dividends (considering a steady state scenario).

The particularity of this model is the consideration of the value of the stock as an input. Consequently, since the stock price is the goal of this Novabase Equity Valuation, instead of an input, this model should not be considered, due to the intrinsic circularity.

1.1.3 Adjusted Present Value Approach

The Adjusted Present Value (APV) model is an additional way of valuing a firm, firstly studied by Modigliani and Miller and afterwards applied by Stewart Myers.

After many years of research, formulations and thoughts, Modigliani and Miller[19] presented the APV model as the sum of the value of the unleveraged firm and the present value of the interest tax shields, whereas it would be represented as a function of the interest tax shields discounted by the risk-free rate. In accordance to their opinion, the following formula would be used to achieve the value of the leveraged firm:

$$V_L = V_U + PV_{interest\ tax\ shields}$$

Where $[V_U]$ is the abbreviation for the unleveraged value of the firm and $[PV_{interest\ tax\ shields}]$ is the present value of the interest tax shields, given by the following way of calculation:

$$PV_{interest\ tax\ shields} = \frac{R_F \times Debt \times Tax\ rate}{R_F}$$

Where $[R_F]$ is the risk-free rate, $[Debt]$ is the amount of money that the company owe.

On the other side, Myers believed that the interest expense should not be computed with the risk-free rate, due to the fact that the access to the cost of debt is different for each investor. Thus, the interest rates would be different and the author presented the Present value of interest tax shields as a function of cost of debt, instead of risk free rate, as it presented below:

$$PV_{interest\ tax\ shields} = \frac{K_d \times Debt \times Tax\ rate}{K_d}$$

Complementing our analysis of APV Model with most recent theories, Fernandez states that this model is applied to value the impact of tax shields, which determines "the increase in the company's value as the result of the tax savings by the payment of interest." [20]

[19] Modigliani and Miller (1963)

[20] Pablo Fernandez (2013) http://www.iese.edu/research/pdfs/di-0715-e.pdf

Nevertheless, from Damodaran point of view, the APV Model is given by "adding the marginal impact of debt on the value of the unleveraged firm value"[21].

In order to better understand the decomposition of this method, the necessary steps to reach the value of the firm will be shown, as according to Damodaran: "we begin by estimating the value of the firm with no leverage. We then consider the present value of the interest tax savings generated by borrowing a given amount of money. Finally, we evaluate the effect of borrowing the amount on the probability that the firm go bankruptcy, and the expected cost of bankruptcy."[22]

Thus, the value of the leverage firm will be achieved according to the following formulation:

$$V_{Levered\ firm} = V_{Unlevered\ firm} + Tax\ Benefits\ from\ Borrowing + PV_{Expected\ Bankruptcy\ Costs}$$

Rephrasing the APV model, according to Damodaran, the main steps are:

I. The company should be valued as if it was all-equity financed, assuming a null debt ratio. In these terms, the objective is to reach the value of the unleveraged firm, considering the value of current after-tax operating cash flow to the firm ($FCFF_0$) and discounting it to the unleveraged cost of equity (Ku). Under this statement, one of the following assumptions may be chosen:
   a. The cash-flows of the firm will grow at a constant rate in perpetuity or;
   b. Different growth rates are assumed for each year until it reaches stable growth scenario.

   Following the first assumption we will have the following way of calculation:

$$Value\ of\ Unleveraged\ Firm = \frac{FCFF_0\,(1+g)}{K_u - g}$$

[21] Damodaran http://pages.stern.nyu.edu/~adamodar/pdfiles/valn2ed/ch15.pdf
[22] Damodaran http://pages.stern.nyu.edu/~adamodar/pdfiles/valn2ed/ch15.pdf

In order to get the value of the unleveraged cost of equity or required rate to assets, the following formula should be used - if the current value of the beta of the firm is known:

$$\beta_{unleveraged} = \frac{\beta_{current}}{1 + (1 - t)\,\frac{D}{E}}$$

Where $\beta_{current}$ the current equity beta of the firm, t is is the tax rate of the firm and D/E is the current debt to equity ratio.

Applying the CAPM approach, previously explained in **Topic 1.1.2.2. – Cost of Equity**, the value of the unleveraged cost of equity *(Ku)* will be computed, in order to reach *the v*alue of the unleveraged firm.

$$K_{unleveraged} = R_f + \beta_{unleveraged}\left[E(R_m) - R_f\right]$$

One important aspect that should be bear in mind, is that, if in fact the company does not have debt and the only source of financing is equity, then the cost of equity will be equal to the unleveraged cost of equity, and consequently equal to the weighted average cost of capital ($K_u = K_e$ = WACC)

II. The objective of the second step of APV Valuation is to estimate the present value of interest tax shields which are the expected tax benefits, considering a certain level of debt. In other words, through this step, the effect of debt level will be studied to value its impact on the value of the firm.

The present value of the interest tax shields would be obtained as a "function of the tax rate of the firm and is discounted at the cost of debt to reflect the riskiness of this cash-flow. If the tax savings are viewed in perpetuity."[23] Thus, the present value of interest tax shields can be reached through the following formula:

$$PV_{Interest\ tax\ shields} = \frac{t \times K_d \times D}{K_d} = t \times D$$

Where K_d is the cost of debt, D is the amount of debt of the firm and t is the firm marginal tax rate (that is assumed to maintain constant over time).

III. Finally, within the third step, the effect on the given debt level of the default risk is valued, as well as, the impact on the expected bankruptcy costs.
In order to achieve these values, Damodaran presents the following formula:

$$PV_{expected\ bankruptcy\ costs} = Prob.\ Bankruptcy \times PV\ of\ bankruptcy\ costs$$

Advantages and Drawbacks of Adjusted Present Value Model

The presented model is useful and detailed, once it "separates the effects of debt into different components and allows the analyst to use different discount rates for each component"[24]. Therefore, it provides an extensive view, due to the fact that debt level will not be considered unchangeable over the years.

On the other hand, the value of the firm when using this model implies a high level of uncertainty regarding the estimation of the probability of default and bankruptcy costs. It represents an extreme threat for our valuation and, consequently, it will not be applied.

[23] Fernandez (2013) http://www.iese.edu/research/pdfs/di-0715-e.pdf
[24] Damodaran: http://pages.stern.nyu.edu/~adamodar/pdfiles/valn2ed/ch15.pdf

1.2 Option Pricing Model

1.2.1 Real Options Analysis

The Option Pricing Theory derives from the valuation of derivative securities. The subsequent value will be reached through the appraisal of an underlying asset.

In order to better understand this model, we will start by explaining the meaning of its main components and drivers.

An option gives its holder "the right to buy or sell a specific quantity of an underlying asset at a fixed price (called the strike price or exercise price) at or before the expiration date of the option."[25] Due to the nature of the option, the holder will be able to choose between exercising the option or not to exercise depending on its expectation of the value of the asset, before the maturity date. According to Damodaran (1994), within the Option Pricing Model, we can find two types of options: (I) Call Options and (II) Put Options.

I. Call Options

A call option allows the buyer to have the right (not the obligation) to buy the underlying asset at a fixed price at any time prior to the maturity date.

In the case of buying a call option, the buyer will pay the call price, and in exchange, he will receive the right to exercise the option any time he wants. At the maturity date, if the asset value (S) is greater than strike price (K), the holder has an incentive to exercise the option. Thus, the Net Profit is equal to S – K – Call Price

Conversely, if the holder is in the position of seller, by selling a call option, he will "receive the call price and agrees to deliver the asset at the exercise price if the buyer demands it any time before expiration"[26]. Through this scenario, if the asset price is lower than strike price, the buyer will not have incentive to exercise the option. This way, the Net Profit will be equal to the Call price.

[25] Damodaran (1994)
[26] Damodaran (1994)

II. Put options

Having a Put Option, the holder has the right to sell the underlying asset at a strike price at any time prior to the maturity date.

If the holder assumes a position of buyer, as verified in call option case, the buyer receives the right to exercise the option in exchange of the option price. At the maturity date, if the strike price is higher than asset price, the investor will receive the net profit which equals the difference between the strike price and the asset price.

On the other hand, if the trader is selling a put option, he will receive the put price and assumes to buy the asset, in the case where the buyer exercises the option. However, there is no incentive to exercise the put if the asset value is higher than strike price.

Furthermore, there are two approaches to value the options: Binomial option-pricing and Black Scholes. The first method points the combination of the risk-free of borrow or lend and the value of the underlying asset to generate cash flows. It is "based upon a simple formulation for the asset price process in which the asset, in any time period, can move to one of the possible prices"[27]. On the other side, the Black Scholes Model is "one limiting case of the binomial, but it reduces the information requirements substantially."[28]

Using the Option Pricing Model on valuation, the value of the Equity will be operated as a call option of the firm whereas "exercising the option requires that the firm be liquidated and the face value of the debt (which corresponds to the exercise price) paid off".[29]

There are some limitations of the value of the firm achieved through this approach, such as: the inherent conflict between bondholders and stockholders, as well as, the overestimation of the equity value when considering troubled companies.

[27] Damodaran (1994)
[28] Damodaran (1994)
[29] Damodaran (1994)

However, this model is suitable for firms with natural-resources investments, such as: mines, oil reserves, etc. and companies with products patents. This category of firms has "investment opportunities that are option-like features; these features are usually difficult, if not impossible, to capture using DCF valuation."[30] These companies' valuation requires additional variables that consider the level of uncertainty of the projects or investments, while estimating the value of the firm. The level of uncertainty is given by the inherent risk remained in the natural, environmental, geographic and economic conditions.

[30] Barbara Petitt and Kenneth Ferris in *Valuation for Mergers and Acquisitions (2013)* by Pearson Educational Inc.

1.3 Economic Income Models

Economic Income Models, Value creation Approaches or Residual Income Models, contrary to DCF Valuation, rely on the value of earnings to estimate the value of the company.

The main principle of the economic income models is that "the company that produces positive economic income creates shareholder value. Consequently it should be rewarded with a higher share price".[31]

Fernandez (2013)[32] presents four possible ways of valuating the firm through Value creation approach: [1] Economic Value Added, [2] Economic Profit, [3] Cash Value Added [4] CRFROI.

Our goal is to present the first two methods, according to the suitability for Novabase Valuation.

1.3.1 Economic Value Added (EVA)

The Economic Value Added (EVA) approach returns the value of the enterprise, through the weighted average cost of capital.

Fernandez (2013)[33] refers that EVA results from the amount of NOPLAT (Net operating profit after tax) subtracted by company book value and multiplied by the weighted average cost of capital.

Over this statement the EVA value would be achieved through the following formula:

$$EVA_t = NOPLAT_t - (N_{t-1} + Ebv_{t-1}) \times WACC$$

Where [NOPLAT_t] is the Net operating profit after tax, [$N_{t-1} + Ebv_{t-1}$] is the book value of the company and WACC is the required rate of return.

[31] Barbara Petitt and Kenneth Ferris in *Valuation for Mergers and Acquisitions (2013)* by Pearson Educational Inc.
[32] Pablo Fernandez (2013)
[33] Pablo Fernandez (2013)

Damodaran mentions that EVA is "a measure of surplus value created on an investment "[34], having the following way to calculate its value:

$$EVA = (Return\ on\ capital - Cost\ of Capital\ ) \times Invested\ Capital\ in\ Project$$

Moreover, Damodaran still points as an advantage of this method the fact that "it avoids the problems associated with approaches that focus on percentage spreads - between ROE and Cost of Equity; ROC and Cost of Capital"[35] and also the influence that the value of the firm will have in investment and dividend decisions.

1.3.2 Economic Profit (EP)

The Economic Profit Model *(EP)* returns the value of the equity using the required rate of return or cost of equity (K_e).

Fernandez (2013)[36] points that Economic Profit is "the book profit less the equity's book value multiplied by the required return to equity" and additionally presenting its way of computation as follows:

$$EP_t = PAT_t - Ebv_{t-1} \times K_e$$

Where [PAT_t] is the accounting net income or profit after tax, [Ebv_{t-1}] is the equity's book value and [Ke] is the required rate return to equity.

[34] Damodaran Presentation: http://pages.stern.nyu.edu/~adamodar/New_Home_Page/lectures/eva.html
[35] Damodaran (1994)
[36] Pablo Fernandez (2013)

1.4 Relative Method

Relative Method is based on the use of multiples, whereas a multiple is a ratio of two financial variables. Through the Relative Method, the stock price of a company is computed by applying the estimation of similar assets. In accordance to this valuation method "the value of the equity in the firm is based upon the pricing of comparable firms relative to the earnings, cash-flows, book value or sales".[37]

This valuation method can be divided in two different types of multiples: [1] Price Multiples and [2] Enterprise Multiples. The first group of multiples is computed with reference to the earnings and intuitively to the value of Equity; whereas the second set of multiples comprises the enterprise value.

Rather than choosing what multiple is the most appropriate to use, it is important to define the group of comparable firms – peer group. This group of comparable firms should be share similar characteristics, such as: growth rate, sector of activity, nature of the business, level of revenues, debt to equity ratio, among others.

The ideal peer group would have between 4 to 6 companies within the same industry and similar features. The objective is to get the multiples value for each company and, then, through the average, reach the enterprise value.

Therefore, the choice of the peer group could represent a threat to our analysis and equity research, once it is extremely subjective. To overcome the presented threat, a careful analysis of the industry and the possible companies that will be composing the peer group will be performed, in order to eliminate over/underestimations and to reach the most precise estimation of Novabase enterprise value.

Advantages and Disadvantages of Relative Model

The relative model is simpler and easier to apply compared to the other methods. In accordance with Barbara Petitt and Kenneth Ferris, it is a "quick and dirty way to estimate the value of the

[37] Damodaran (1994)

company."[38] Simultaneously, Damodaran points that the relative model is "more likely to reflect market perceptions and moods than discounted cash flows valuation."[39] It will be extremely important in cases where it is necessary that the price reflects these perceptions. Finally, this approach requires less information, becoming easier and faster to apply.

On the other hand, as already mentioned, this method is particularly subjective.

1.4.1 Price Multiples

There are three different ways of valuing the firm through Price Multiples: [1] Price to Earnings Ratios, [2] Price to Sales Ratios and [3] Price to Book value Ratios.

I. Price to Earnings Ratios

The price to Earnings ratios are the most widely used in valuation, not only because of its simplicity and information availability, but also because it is a "proxy for a number of other characteristics of the firm, including risk and growth."[40] Therefore, in contrast to the DCF valuation, the Multiples approach eliminates an important phase regarding assumptions estimations, including: level of risk, growth rate, payout ratios, etc.

As it is understandable by the denomination, the price to earnings ratios relates the price per share of the company to its earnings per share.

Relating to the Price to Earnings Ratios, the composition and applicability of four of the several multiples will be explained: [1] P/E Ratio, [2] P/EBIT Ratio, [3] P/EBITDA Ratio and [4] PEG ratio – that according to Damodaran is a particular ratio that should be used in IT companies whose main driver is the expected growth rate.

These ratios require positive accounting earnings. However, not all companies are profitable. In such cases, investors need to find alternative approaches, namely multiples that refer to the sales value instead of earnings.

[38] According to: *Valuation for Mergers and Acquisitions (2013)* by Pearson Educational Inc.
[39] Damodaran (1994)
[40] Damodaran (1994)

I.I Price to Earnings Ratio (PER)

This ratio relates directly the price per share of the company to its earnings per share.

The formula to be used is as follows:

$$P/E = \frac{Price\ per\ share}{Earnings\ per\ share}$$

Over this valuation approach, considering that the all other factors remain equal, higher growth firms will have higher PER, as well as companies that comprise a higher level of risk.

I.II Price to EBIT Ratio

In this case, in order to achieve the value of the multiple, the stock price of the firm will be divided by EBIT per share, as shown in the formula below:

$$P/EBIT = \frac{Price\ per\ share}{EBIT\ per\ share}$$

I.III Price to EBITDA Ratio

This multiple refers the relation between the Equity value of the firm and EBITDA – earnings before interest taxes and depreciation and amortization.

$$P/EBITDA = \frac{Price\ per\ share}{EBITDA\ per\ share}$$

I.IV Price Earnings to the Expected Growth rate

This multiple is a particularly used in IT service firms, as Novabase, once it relates the price earnings to the expected growth in earnings per share.

$$PEG = \frac{Price\ to\ Earnings\ per\ share}{Expected\ Growth\ Earnings\ per\ share}$$

However, it has some limitations, mainly the fact that the companies that have extremely low or high risk rates will tend to have higher PEG ratios compared to firms with "normal" growth rates possibly leading to biased results.

II. Price to Sales Ratios

The Price to Sales Ratio comprises the relation between the stock price per share and the value of sales, as can be observed in the formula below:

$$P/Sales = \frac{Price\ per\ share}{Sales\ per\ share}$$

The choice of the analysts to use Price to Sales Ratios is allied with the fact that it can be useful for troubled companies, due to fact that in Price Earnings ratio the value "can become negative and not meaningful."[41] Additionally, this ratio is not easily influenced to the accounting changes and decisions (such as: depreciation and inventory), once the level of sales or revenues is extremely difficult to manipulate. Finally, according to Damodaran (1994), this is the less volatile ratio and consequently it tends to be "more reliable for use in valuation".

Conversely, one of the disadvantages of this relative is the fact that revenues could not be showing the most precise scenario of the firm. Meaning that the level of revenues could remain constant, but still the level of earnings and/or price per may be falling/rising imprudently.

III. Price to Book Value Ratios

The price to book value ratio presents "the relative premium that investors are willing to pay over the book value of their equity investment in a company".[42] It is achieved through the following way:

$$Price\ to\ Book = \frac{Market\ Value\ of\ the\ Firm}{Book\ value\ of\ the\ Firm}$$

[41] Damodaran (1994)
[42] Barbara Petitt and Kenneth Ferris in *Valuation for Mergers and Acquisitions (2013)* by Pearson Educational Inc.

Analysts considered that it is "highly sensitive to accounting standards and management's accounting decisions". Consequently its usage is extremely selective and most frequent for insurance companies and financial institutions that are distinctive for highly liquidity of assets and liabilities.

Damodaran (1994) refers as an advantage of this model the fact that it "provides a relatively stable, intuitive measure of value that can be compared to the market price"[43] and also the fact that it can be applied to companies with negative profits.

Notwithstanding, the main drawbacks presented are the fact that this multiple is drastically affected by accounting results and its inutility for service companies.

1.4.2 Enterprise Multiples

The enterprise multiples are reached using the enterprise value of the peer group as reference. Opposing to the other multiples, it analyzes the market value of the operating assets of the firm.

These multiples are suitable to value the equity value per share, for example in the context of M&A.

The most two widely used ratios are: [1] EV/EBITDA and [2] EV/Sales.

I.I EV to EBITDA Ratio

This multiple is achieved by "netting cash out against debt to arrive at enterprise value and dividing by EBITDA."[44]

It can be obtained through the following formula:

$$EV/EBITDA = \frac{MV\ Equity + MV\ Debt\ - Cash}{EBITDA}$$

[43] Damodaran (1994)
[44] Damodaran Presentation: http://people.stern.nyu.edu/adamodar/pdfiles/execval/relvalX.pdf

I.II EV to Sales Ratio

The EV to Sales Ratio refers to the relation between the market value of the firm and the total amount of revenues, as presented:

$$EV/Sales = \frac{MV\ Equity + MV\ Debt - Cash}{Sales}$$

According Damodaran[45] one of the cons presented to this multiple is the adjacent inutility for service companies or brand names.

[45] Damodaran Presentation: http://people.stern.nyu.edu/adamodar/pdfiles/eqnotes/ps.pdf

1.5 Valuation Methods Conclusion

In this chapter, the several possible ways of valuing a firm were presented, with the main goal of achieving the set of most suitable models to use when valuing Novabase price per share.

Each model has specific characteristics and should be applied to certain type of firms, according to the business nature, intensity of the cash-flows, etc. According to Damodaran, "the model used in valuation should be tailored to match the characteristics of the asset being valued"[46].

In Table 2, the advantages and drawbacks of each valuation model are presented, as well as the type of companies for which each model is most suitable, in order to summarize and better understand the choice of the Valuation Models for Novabase:

		Advantages	Disadvantages	Best suited for …
Discounted Cash-flow Valuation	Free Cash Flow to the Firm	- Returns the closest approximation to the real value of the firm; - Less exposed to market moods and perceptions.	- Higher complexity and uncertainty related to the prerequisite of high number of inputs.	- Companies that do not pay dividends or whose dividend payment pattern is irregular; - Firms with shifting leverage.
	Free Cash Flow to the Equity	- Returns the closest approximation to the real value of the firm.	- Inherent difficulty on defining the projection of cash-flows and structure of financial sources.	-Firms in stable leverage and growing at the same or higher rate than the economy.
	Adjusted Present Value	- Separates the effects of debt into different components allowing the usage of different discount rates.	- Uncertainty regarding the estimation of the probability of default and bankruptcy costs.	- Value projects that have different risk and components within a firm.
Option Pricing Model	Binomial and Black Scholes	- It allows to value assets that otherwise would not be able to value and provides fresh insights into drivers of value.	- Difficulty in obtaining the inputs for the option pricing model and the inherent conflict between bondholders and stockholders.	- Firms with natural-resources investments, such as: mines, oil reserves etc. and companies with product patents.

[46] Damodaran (1992)

		Advantages	Disadvantages	Best suited for …
Economic Income Models	Economic Value Added and Economic Profit	- It considers the earnings, the costs and risks associated with the sources of earnings.	- Increasing the value of the EVA or EP is not synonym of value creation, once it depends on expectations.	- Useful to value companies as a performance indicator.
Relative Model	Earnings Multiples - Price to Earnings - Price to Sales - Price to Book	- It deals with facts, once the value of the earnings is real and not based on expectations. - It is not easily influenced to the accounting changes and decisions. - Provides a relatively stable, intuitive measure of value that can be compared to the market price.	- The level of earnings is inconstant and change significantly each year. - Revenues could not be showing the most precise scenario of the firm. - Drastically affected by accounting results.	- Companies publicly traded and generating positive earnings; - Firms from highly cyclical industries - firms that are sensitive to the business cycle. - Insurance companies and financial institutions.
	Enterprise Multiples	- Avoid the influence of capital structure on the equity value multiples and easier to apply to cash-flow.	- This approach is simplistic and it can be difficult to compare.	- Useful in the context of Mergers and Acquisition valuation.

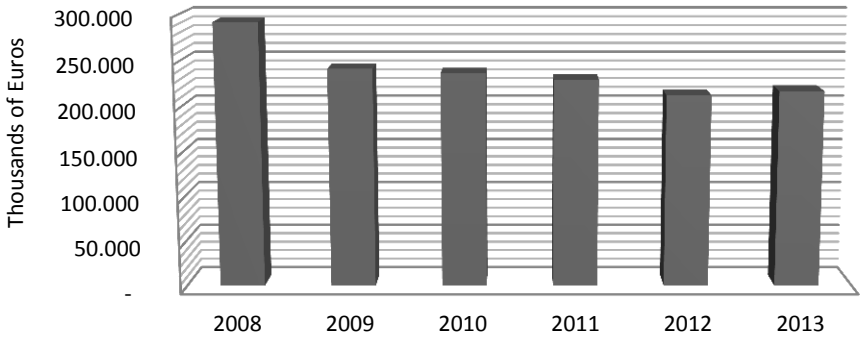
Table 2 – Advantages and drawbacks of the Valuation Methods

By synthetizing the major characteristics of each valuation model, it becomes easier to choose the most suitable models for Novabase Equity valuation. Primarily, we exclude both the option pricing model and the Economic Income Models.

Novabase was founded as a “software-house” whose main goal was to develop business solutions through the use of Information Technology (IT). In less than 20 years, Novabase had positioned itself as the largest Portuguese technology company.

The aim of expansion of its business into international markets is already being achieved with remarkable results. On the 31st December 2013, Novabase presented revenues around 216 million euros and net profit of 7,5 million euros.

Its historical turnover shows that Novabase had been presenting constant revenues, representing a steady growth scenario, as figured in the picture that follows:



Graph 1 – Historical values of Novabase Turnover

Consequently, analyzing the pros and cons of each model and looking at the most suitable companies for each model, according to the obtainable characteristics for Novabase, the source of growth, stability of leverage and its industry sector, the most appropriate model is the Discounted Cash-flow Valuation, more specifically the Free Cash-Flow to the Firm approach. Furthermore, in order to complement our analysis, the Relative Valuation model will be performed. In this last valuation model we exclude the Price to Book Values and Price to Sales Values, due to the non-compatibility to Novabase main characteristics.

2. Company Presentation

In this Section, we present the most important characteristics and features of Novabase. In order to have a better contextualization, we start by presenting Novabase history and its first steps in the IT services industry. Furthermore, we provide an overall view of Novabase business segments, operational sectors, financial performance and stock performance, allowing for it to be easier to understand the subsequent assumptions, presented in Section 3.

2.1 Novabase presentation

The company was founded in 1989 as a "software-house" and an Information Technology (IT) solution provider. Its main goal was to develop the business solutions through the use of IT and communication. The key differentiation of the Novabase business solutions was the specialization, whereas each customer and/or company would be able to receive a customized and unique solution.

Novabase provides process efficiency and integration solutions, allowing the computerization, mechanization, and integration of business-critical processes.

2.1.1 Beginning and First steps

During the second half of 1990, Novabase positioned itself as an integrator system company, increasing the extensiveness of its offers and building a network of specific and specialized companies.

In 1994, Novabase became the first company in the software development market in Portugal that obtains the certification of their production process by IPQ (Instituto Português de Qualidade), according to NP EN ISO 9001[47].

In 24 years, Novabase became the Portuguese leader in the IT sector and managed solutions, listed on Euronext Lisbon since 2000.

[47] NP EN ISO 9001:2008 – "Sistemas de gestão da qualidade – Requisitos". (IPQ)
Information according to the Novabase Website: *www.**novabase**.pt*

By 2008, Novabase had created a concept of a "Specialist Enterprises Network, creating along with it an unbeatable value preposition for new talents. Spin-offs were created and/or companies were acquired in areas such as Decision Support, Data Quality, Specialized Human Resources Outsourcing, CRM and others. Key shared services companies were created along with the venture capital company, Novabase Capital". [48]

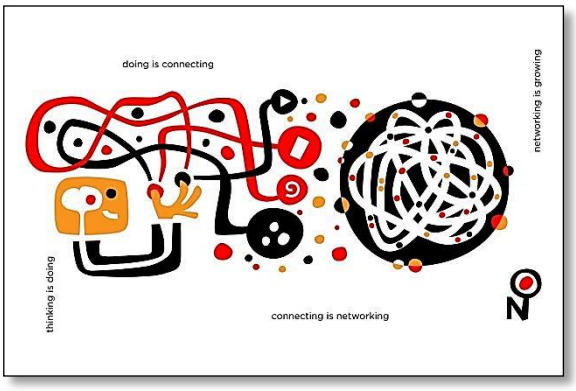
In 2010, Novabase created a new brand, new vision, values and organizational structure, in order to "experience" the Novabase culture every day.

I. Vision, Culture and Values

The vision of Novabase is to make people's lives and companies' daily routines easier and happier through the use of the technology. According to the Novabase CEO, "it is an outward-looking vision focused on benefits for people, both our customers and their customers alike. It is a pioneering and innovative approach. Each customer becomes an opportunity for us to change the lives of thousands or millions of people."[49]

By hiring the best and professional expertise, Novabase have been gathering the most important skills and achieving great success, not only in the national but also the international market.

Simultaneously, Novabase has created its new values. Novabase CEO approves that "we focused the organization on what distinguishes it; we defined our service, attitude, positioning and growth strategy. Instead of nouns and adjectives, we use verbs in the present tense and in the first person. "I give", "I listen", "I connect" and "I grow" are our values."[50]



Picture 1 – Logotype and values (Source: Novabase Annual Report of 2013)

[48] Novabase Annual Report 2008
[49] Novabase Annual Report of 2010
[50] Novabase Annual Report of 2010

II. Mission

Novabase's mission is to design, deploy and manage innovative business solutions in order to create customer benefits, such as: profitability, service quality and individual satisfaction.

III. Strategy

Novabase first priority is to grow extensively in terms of international turnover, by creating a sustainable growth, increasing sales and investing in the differentiation of its offers.

IV. Design Thinking

Through its approach of “Design Thinking”, Novabase proposes a creative and new way where individuals are the focus of the solutions. The objective is to reach the demanded solutions by focusing on peoples’ opinion and satisfaction.

In 2012, Novabase reached a turnover of 212 million euros, with 29% of their revenues being obtained outside of Portugal. It is also important to highlight that Novabase operated in 40 different countries, including UK, France and countries in the Middle East, Asia and Africa.

In 2013, Novabase international activity grew 18%, representing already 34% of total annual turnover. According to the Annual Report of 2013, “internationalization is a focus that intensifies year after year, above all in emerging markets.” Novabase products and services have become more sophisticated, allowing them to compete directly with the major companies worldwide.

According to European Union (EU) information, Novabase is considered the sixth company that has higher level investment in Research and Development (R&D) Innovation.

In terms of future perspectives, Novabase aims to achieve higher market share in foreign countries by implementing more projects and creating new opportunities in the African market, namely in South Africa.

2.1.2 Operational Business Structure

From the beginning of Novabase first steps, the company aims to ensure the fully commitment and support of their customers, within a multiplicity of sectors.

In order to organize its business segments and consequently to increase the volume of clients, Novabase started structuring itself according to the following main segments: [1] Business Solutions, [2] Infrastructure and Business Solutions, [3] Digital TV and [4] Novabase Capital.

I. Business Solutions (BS)

This segment is essentially responsible for Financial Services, Government & Healthcare, Telecommunications & Media, Business & IT consulting, Advanced Custom Development, Business Intelligent and Enterprise Applications & Integration.

Business Solutions focuses on "business process consulting, and in designing and deploying applications solutions to support these processes".[51]

It allows Novabase to work directly with the largest companies and institutions from Portugal. Additionally, Novabase started implementing its business solutions on emerging markets, internationalizing its operations.

II. Infrastructure and Managed Solutions (IMS)

Inside this segment, Novabase developed three operational areas: Intelligent Infrastructures, IT Management and Managed Services & Outsourcing.

The first area "develops its engineering expertise through systems and communication infrastructure consulting, design, planning and deployment services."[52]

The second area "specializes in IT management and operation process consulting and optimization. It has specific competencies, certifications and software to address every aspect involving the organization, its processes and respective industrialization." [53]

[51] Novabase Annual Report of 2008
[52] Novabase Annual Report of 2008

The third area focuses on "post-deployment management and operation, and specifically on specialized or global outsourcing of the entire IT infrastructure." [54]

From 2009, IMS segment was also in charge of Ticketing and Transport Solutions, one of most important business line implemented and developed for transportation sector. Novabase was able to provide organization and gadgets for every stage of the life-cycle of the transporting sector tickets.

III. Digital TV

Digital TV segment was organized in two main activities: Digital TV - where Novabase provide Digital TV solutions - and SIP (System-in-pack) that represents I&D solutions.

This business area had an extraordinary growth potential. In 2008, Novabase was a "technology leader in the set-top box market, with a history of innovation and of launching new products of great customer value on the market."[55] Additionally, Novabase was the "supplier for all the major cable and pay TV operators in Germany (the largest TV market in Europe) through its partners." [56]

This business segment lasted until 2012, due to restructuring strategies.

IV. Venture Capital (or Novabase Capital)

Novabase Capital is a venture capital firm owned entirely by Novabase SGPS, SA. Its main purpose is to "support Portuguese business projects – in early development or expanding – with high value potential and synergies with Novabase."[57]

Novabase invests, reviews strategies and offers services, such as: marketing and accounting support, in order to help these companies being more profitable and dynamic.

[53] Novabase Annual Report of 2008
[54] Novabase Annual Report of 2008
[55] Novabase Annual Report of 2008
[56] Novabase Annual Report of 2008
[57] Novabase Annual Report of 2009

To ensure the continuance of Venture Capital operations, Novabase has been gathering the support of institutions, such as: PME Investimentos, FINOVA – Fundo de Apoio ao Financiamento e à Inovação, PRIME, COMPETE and European Union.

In order to maximize the synergies and operational efficiency, during the second semester of 2012, Novabase reorganized its segments, incorporating Digital TV solutions (DTV) in Infrastructures and Managed Solutions (IMS) and System-in-Package (SIP) in Venture Capital (VC) segment.

Before the reorganization, the Digital TV segment was essentially represented by the German held company, TechnoTrend. However, Novabase decided to sell TechnoTrend, after a long period of reported losses.

Nowadays, after this business restructure, Novabase organizes itself in three operational segments: Business Solutions, Infrastructure and Managed Solutions and Venture Capital. This business structure is predicted to be maintained in the future.

2.1.3 International Expansion

"Internationalization is the will, the way and the strategy."

Luís Paulo Salvado, Novabase CEO

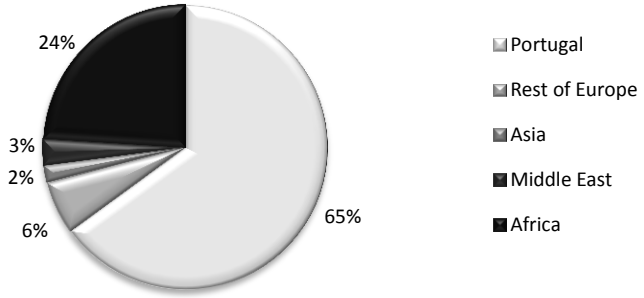
The efforts made regarding international expansion were rewarded and became visible in 2010. Through the implementation of the new brand, vision and mission, Novabase created the intention of expand quickly and globally.

More than the Portuguese IT leader, in 2010, Novabase became a potential and solid company with 8 offices in 6 different countries – Portugal, Germany, Spain, France Angola and United Arab Emirates - with innumerous projects in the 4 continents.

In 2012, as result of selling TechnoTrend, Novabase offices in Germany and France were shut down, due to the disintegration and sale of part of Digital TV segment.

In 2013, Novabase had the opportunity to focus on more profitable projects and markets, opening offices in Maputo (Mozambique) and London (United Kingdom) - countries with powerful economies and higher range of opportunities.

According to Annual Report of 2013, the distribution of turnover by geography was the following:



Graph 2 – Novabase turnover by geography in 2013

Through Graph 2, we can notice that the second most representative continent is Africa, representing already 24% of total turnover and a strong opportunity to Novabase African's operations.

In 2010, Novabase Angola inaugurated its operations, creating partnerships with local companies. Around 50% of Novabase Angola is held by Novabase SGPS, whereas the remaining is held by a local firm, Microcenter.

In the second quarter of 2013, Novabase reinforced its position in Africa with the official inauguration of operations in Mozambique. Novabase had invested around 200 Thousand Euros and transferred 10 consultants to ensure the successful implementation of Mozambique's transportation system.

Taking a look at the Guidance for 2014, we can conclude that Novabase expects to maintain its international strategy, gathering partnerships in Istanbul and Ghana. Novabase is considering the acquisition of other companies to accelerate international expansion, representing an investment of around 1 Million Euros. Additionally, and having the same goal in mind, Novabase aims to start an office in South Africa.

Novabase Partnerships and Developments

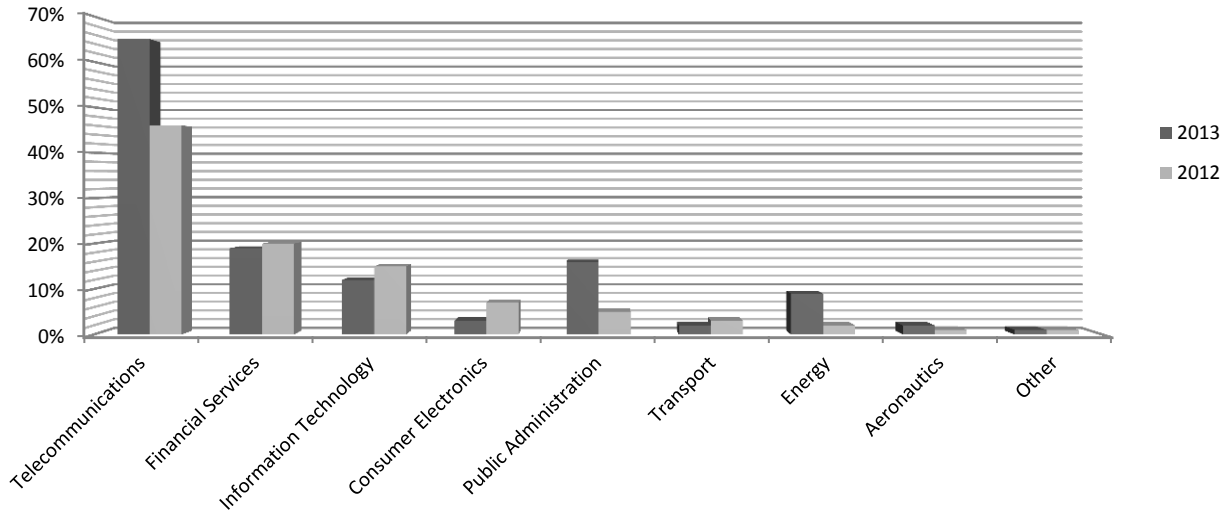
In terms of partnerships, Novabase, in the last five years, has been gathering strategic partnerships with influent companies, including Microsoft, Siebel and SAP. Novabase provides services that include managing, renewal, controlling and asset optimization.

2.1.4 Customers Activity Sector

Novabase operates essentially with companies from the following industries: Telecommunications & Media, Financial Services, Government & Healthcare, Energy & Utilities, Aerospace & Transportation e Manufacturing & Services.

Performance of Turnover by Sector

In Graph 3, we can observe that Telecommunications and Financial Services are the preponderant sectors, representing 36% and 19% of the total turnover, respectively. The information was extracted from Novabase Annual Report of 2013. In 2012, this distribution was quite similar, excepting for the sectors of Public Administration and Energy.



Graph 3: Distribution of Turnover by Sector according to Annual Report of 2013

Main Projects and Developments

In terms of operational sectors, Novabase has already implemented the following important solutions and projects:

- Telecommunications and Media

Novabase has recently developed an automatic transfer call service, where land line calls were directly transferred to mobile phones, to ensure that no call was lost. In addition, Novabase

covered solutions related to advanced multimedia such as: video calling services and instant messaging.

- Financial Services

  Novabase developed important areas, as risk, compliance, and fraud management solutions for several companies. In addition, Novabase was responsible for the implementation of online-services in the largest Portuguese banks, and other services, such as: areas of Deposits, Cards, Credit Specialist, Payment Services and Capital Markets.

  In 2012, Novabase purchased Binómio, a specialized company in financial assets management solutions.

- Government & Healthcare

  Novabase implemented risk and fraud detection systems based on technologies. This project was developed to the Financial and Public Administration Ministry.

  Moreover, Novabase was responsible for the whole process of Census in 2011. Novabase cooperate with Portuguese Government, being in charge of shipping, scanning, the recognition of questionnaires and data processing.

- Energy and Utilities

  Novabase became integrant part of the consortium implemented in Portugal, related to development of Electric Mobility Network (Mobi E). Nowadays, Novabase is in charge of developing the infrastructure, in order to charge the electric vehicles.

- Aeronautics and Transportation

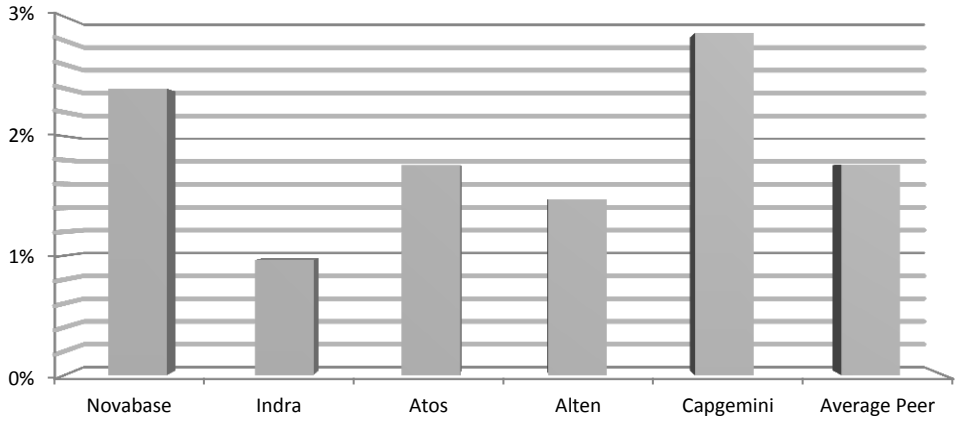
  Novabase contributed to the optimization of all electronic transportation systems, including ticketing and systems operating improvements, in companies including Carris, Fertagus, Intermodal, Seville Metro and Tenerife Metro.

  Additionally, Novabase has developed electronic and rechargeable cards for airport shuffle of Lyon and tram transportation in Nice.

2.1.5 Comparable Firms

In terms of performance, Novabase considers as reference the following companies: Indra, Atos Origin, Alten S.A. and Capgemini S.A. Similarly to Novabase, these companies are considered as fast growthing multinational companies, that offers IT solutions worldwide.

In order to have a better perspective, we obtain the average stock returns for each entity.Consequently, we reached the average return of the comparable firms, to compare to Novabase stock returns in 2013.



Graph 4: Performance of Novabase returns and its comparable firms

Looking at Graph 4, we observe that Novabase had a better stock return performance compared to the average of comparable firms. However, Novabase had the lower price per share, as confirmed in Table 3.

	Indra	Atos	Alten	Capgemini	Average Peer	Novabase
Price per share at 31-12-2013	12,15	65,79	33,00	49,13	40,02	2,61

Table 3: Share prices of Novabase and its comparable firms, at 31st of December 2013

In terms of the main financial ratios, Novabase presents the lowest level of Return on Equity and Return on Capital, as can be seen in Table 4. Such result was caused by the strong local market pressure.

Company Name	Return on Equity	Return on Capital
Cap Gemini S.A.	10%	82%
Atos S.A.	11%	67%
Indra Sistemas, S.A.	11%	26%
Alten SA	19%	47%
Average of Comparable Firms	13%	56%
Novabase	7%	14%

Table 4: Performance of Novabase returns and its comparable firms

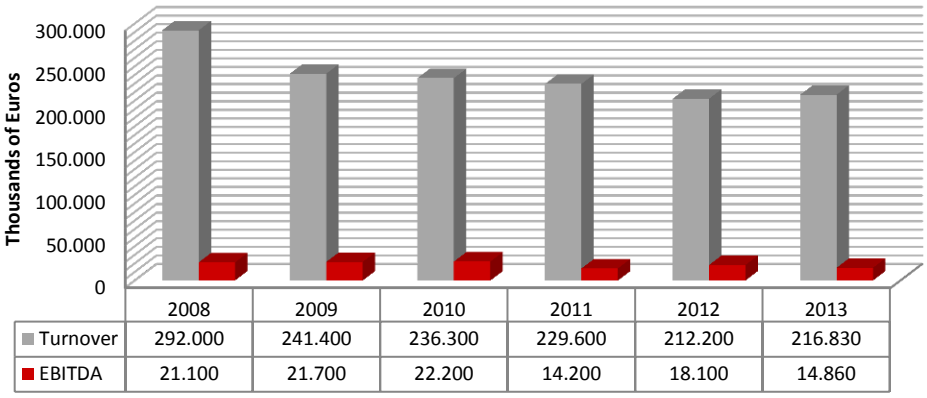
The information was obtained through Damodaran database.[58]

[58] http://www.stern.nyu.edu/~adamodar/pc/datasets/Eurocompfirm.xls

2.1.6 Financial Performance

Novabase has grown significantly in terms of turnover, providing technology solutions, multi-sourcing services, engineering and IT consulting services and communication technologies (ICT) to design, plan and deploy complex infrastructures.

Graph 5 presents the evolution of the value of Turnover and EBIDA in the period between 2008 and 2013. It is possible to see that there has been a strong decrease in the level of growth rate for both indicators. The growth rate of turnover had decreased around 26%, whereas the level of EBITDA had reached a change of 30%., negatively.



Graph 5 – Historical Turnover and EBITDA (in Thousands Euros)

Despite of the national economic crisis, Novabase is trying to recover this negative scenario by gathering solutions and other alternatives. Over Graph 5 it is observable the increase of Novabase turnover from 2012 to 2013, representing a growth rate of 2%. In terms of EBITDA, the tendency was the other way around.

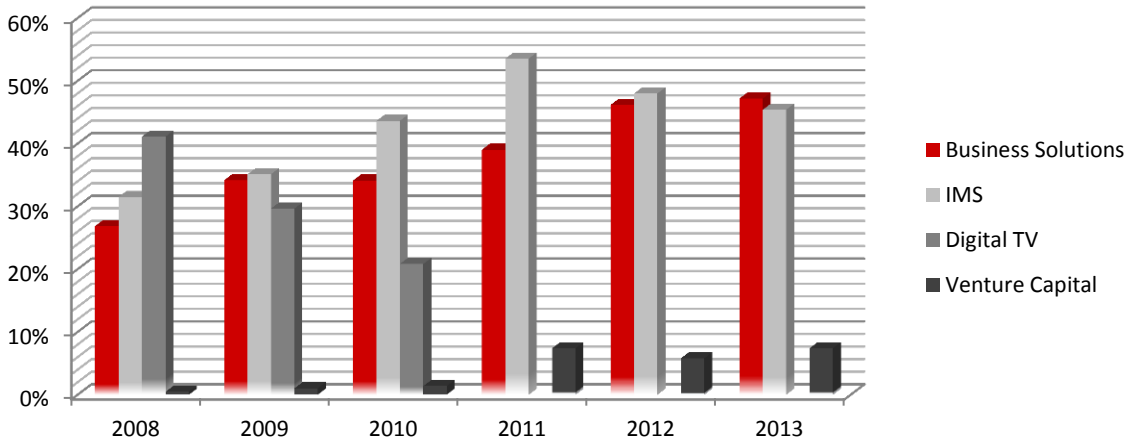
With only 25 years of operations, Novabase has had a prestigious performance, gathering on average a level of 8% of EBITDA over turnover, as confirmed in Table 5.

	2008	2009	2010	2011	2012	2013	Average
Turnover	292.000	241.400	236.300	229.600	212.200	216.830	238.055
EBIDA	21.100	21.700	22.200	14.200	18.100	14.860	18.693
% EBITDA/Turnover	7%	9%	9%	6%	9%	7%	8%

Table 5 – Evolution of EBITDA over Turnover from 2008 to 2013

Overall performance by Business Segment

According to Novabase Annual Reports, the value of turnover was distributed through the following way, in the period between 2008 and 2013:



Graph 6 – Novabase weigh of Turnover by business segment

At 31st December 2013, the Business Solutions (BS) segment represented around 47% of total turnover, whereas Infrastructure and Managed Solutions (IMS) reported 45% and Venture Capital (VC) or Novabase Capital contributed with only 8%.

As already mentioned, Novabase reorganize its business segments, which consequently influenced the turnover by segment. Accordingly, it is important to mention some facts:

- In 2008, Novabase sold the German subsidiary, TechnoTrend, which was incorporated in Digital TV segment. As consequence, the turnover of Digital TV dropped around 68%.
- In 2010, the Business Solutions segment incorporated the activity of Novabase Consulting and Ticketing and Managed Services (namely outsourcing), which previously was an integrant part of IMS segment. The impact of this change was only observable in the Annual Report of 2011. Consequently, in terms of reporting, the value of turnover of Business Solutions segment only increased in 2012.

The Table 6 presents the impact of this restructure:

	According to Annual Report of 2011		According to Annual Report of 2010			
	12M 2010		12M 2010		Change	
	Thousands (€)	Weight (%)	Thousands (€)	Weight (%)	Thousands (€)	Weight (%)
BS	88.900	38%	80.700	34%	8.200	10%
IMS	94.900	40%	103.100	44%	- 8.200	-8%

Table 6 – Business segments restructuration in 2010

- In 2012, in order to maximize the synergies, the Digital TV segment was dissolved, incorporating Digital TV solutions (DTV) in IMS segment and System-in-Package (SIP) in Venture Capital segment. As a result, Novabase incorporated around 85% of Digital TV turnover in the IMS segment, and the remaining 15% in the Venture Capital segment.

As can also be observed in Graph 6, the BS segment increased significantly in the period between 2010 and 2013. It is the result of the current implementation of consulting projects in Africa.

On the other hand, the IMS was affected by the strong local pressure, as the majority part of the Portuguese companies. Novabase is already trying to recover this situation, through the implementation of new solutions and the specialization of the core business.

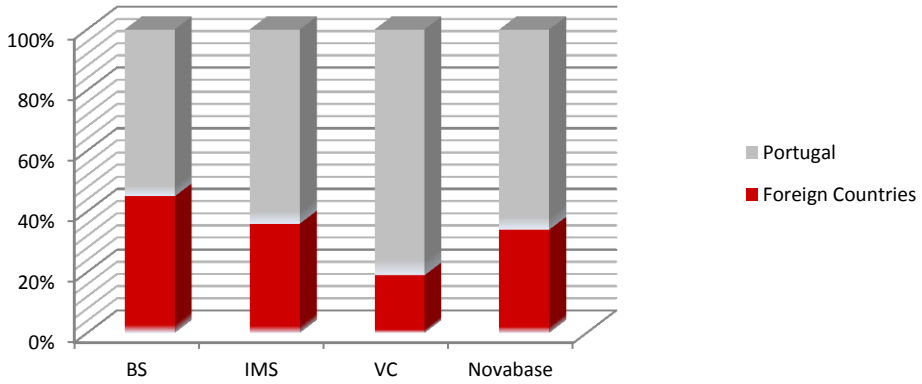
Finally, the Venture Capital segment (VC) has a positive performance, reflecting the growth of the international component, due to of significant investments in R&D.

In terms of reporting, Novabase SGPS (company which is in charge of the management of the Group) and Novabase Services (which includes the company's shared services group) are considered integrant part of the Business Solutions operating segment.

Overall performance by Geography

In 2013, Novabase reported 34% of international turnover, compared to 29% in 2012.

Graph 7 shows the performance of Novabase turnover, in accordance to the geography and the business segments, at 31st of December 2013.



Graph 7 – Distribution of Novabase turnover by geography and segment at 31st of December 2013

As expected the Business Solutions segments presents an international weight more significant, compared to the remaining segments. The majority of projects in the African continent are consulting projects providing IT solutions.

2.1.7 Stock Performance

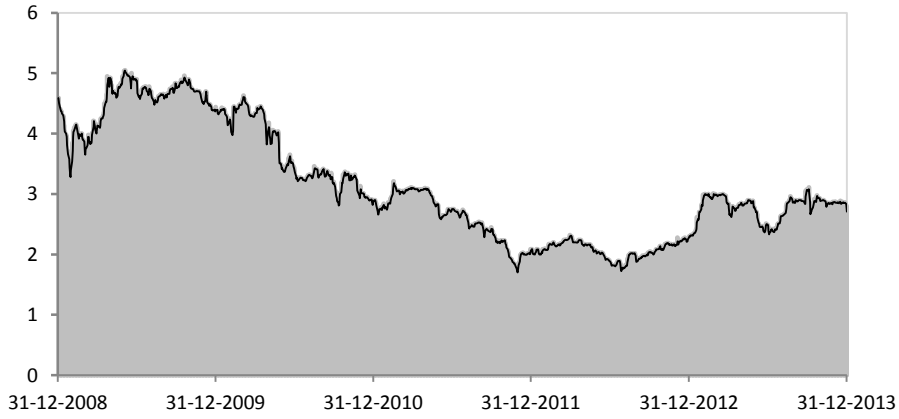
Novabase became a listed company in July 2000, being traded in the stock market, Euronext Lisbon Index, previously known as: BVL-30 Index (Bolsa de Valores de Lisboa e Porto).

In January 2001, the company entered in PSI 20 Index, as result of its remarkable performance. Novabase achieved an average daily volume of 100 thousand shares at an average price per share of 13 euros.

In July 2007, after being analyzed its price falls and lack of liquidity, Novabase exited from PSI 20, being substituted by Soares da Costa. Novabase closed at 5 euros per share, representing a decrease of more than 50% (compared to the Novabase opening price in January 2001).

In March 2013, after 6 years, Novabase had return to PSI 20, as consequence of the profitable liquidity of its shares. However, in only 3 months, the company's stock price felt significantly, guaranteeing its second and last exit on the most important Portuguese index.

In the Graph 8, the value of Novabase stock price can be analyzed in more detail in the period between 2008 and 2013.

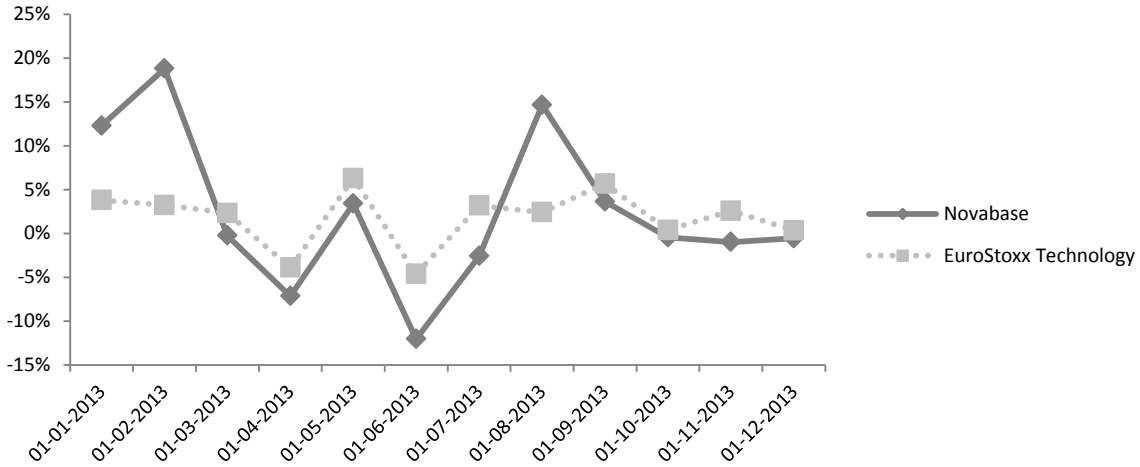


Graph 8 – Evolution of Novabase Stock Price (in Euros)

As can be observed, the Novabase stock price has been significantly decreasing, representing a negative trend. The average price of Novabase stock in the explicit period was around 3.2 Euros.

The Graph 8 represents the evolution of Novabase returns of stock price compared to EuroStoxx Technology in the year of 2013. The mentioned index is analyzed by Novabase and it is used as a reference (not excluding PSI 20).

It gives us a better perspective of Novabase stock performance. Analyzing the general trends, Novabase stock price exhibited a positive performance compared to the IT Index.



Graph 9 – Evolution of Novabase Stock Price compared to EuroStoxx Technology Index

As can be analyzed in Graph 9, the returns of Novabase and Eurostoxx Technology were quite similar. Through additional calculations, we reached an average of Novabase stock returns of 2%, being the same as the average return of the comparable Index.

3. Company Valuation

In this section, we present the valuation methods already chosen and associated assumptions, to achieve the value of Novabase stock price at 31st December 2013.

As stated in the end of Section 1 - Literature Review, the most suitable models are Discounted Cash-Flow (through Free Cash Flow to the Firm) and Relative Valuation. The choice was based on the characteristics of the firm, industry, accessibility to the information and suitability of each model.

Having the selected models in mind, the presented section will be organized in two main sub-chapters: [1] Free Cash Flow to the Firm and [2] Multiples Valuation.

3.1 Free Cash-Flow to the Firm Valuation

In order to reach the Enterprise value of Novabase, this chapter will follow three major steps: firstly, Novabase assumptions will be briefly explained, referring to: growth rate of revenues, cost of goods sold and capital expenditures; secondly, the Cost of Capital assumptions considered to compute Novabase cost of capital will be explained; and finally, the subsequent computations necessary to achieve the Novabase stock price at 31st December 2013 will be shown.

In a primary instance, it is important to clarify several key assumptions, including the length period and choice of the currency for Novabase valuation.

The explicit period chosen was seven years - from 2014 until 2020. It is our belief that within less than 7 years, Novabase will reach a steady growth stage, growing constantly in perpetuity.

Additionally, despite of having businesses and associated transactions worldwide, the currency used is Euro to simplify the calculations and because that is the currency presented in the Annual Reports.

3.1.1 Novabase Assumptions

Keeping in mind our objective of achieving the value of Free Cash-Flows for Novabase, we start by reminding its way of calculation, according to Damodaran methodology:

$$FCFF = EBIT(1-t) + Depreciation\ and\ Amortization - Cap.Expenditures - \Delta\, Working\ Capital$$

In order to accomplish the value of Earnings Before Interest Tax (EBIT), we need to reach the values of the following components:

Sales
+ Services rendered
- Cost of sales
- External supplies and Services
- Employee benefit expense
- Other operational costs
EBITDA
+ Depreciation and Amortization
Operating Profit (EBIT)

Table 7 – Decomposition of EBIT calculation

3.1.1.1 Revenues and Sales

First of all, in order to achieve the realistic value of turnover for Novabase in perpetuity, it is important to understand the components that comprise and contribute to change the value of the turnover. Novabase turnover is obtained by adding the turnover of the three business segments already mentioned. At 31st December 2013, the weight of Novabase Turnover per segments was the following:

Business Solutions	47,2%
Infrastructure and managed Solutions	45,4%
Venture Capital	7,4,%
Novabase Turnover	100%

Table 8 – Weight turnover per segment at 31st December 2013

Additionally, Novabase turnover is computed throughout the sum of both the amount of sales and the value of rendered services. On the 31st of December 2013, Novabase had the following weights of turnover per segment:

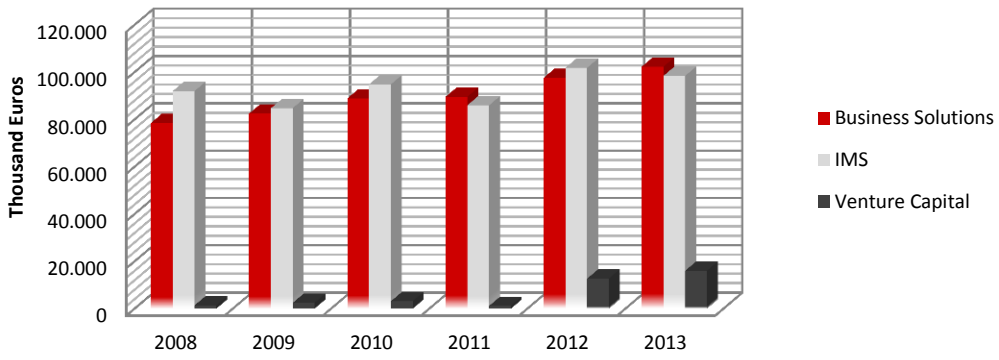
	Business Solutions	IMS	Venture Capital	Novabase
Sales	2%	66%	70%	36%
Services Rendered	98%	34%	30%	64%
Novabase Turnover	100%	100%	100%	100%

Table 9 – Decomposition of Novabase Turnover at 31st December 2013

Looking at the data presented in the table above, we may say that the sales of IMS and Venture Capital segments are the most representative, opposite to the sales of BS segment. Such fact is directly justified by the nature of each segment, as previously explained in the Section 2.

Moreover, it is crucial to understand the evolution of these indicators, in order to recognize its trend and consequently its major drivers.

Through Graph 10, we are able to observe and better understand the contribution of each business segment throughout the past few years:



Graph 10 - Distribution of Turnover by Business Segment

Having this data in mind, our unconscious line of thought would be assuming that the percentage of Business Solutions of total turnover would continue to increase, as well as, the Venture Capital segment. On the other hand, the Infrastructure and Managed Solutions would be decreasing until achieving a stable growth scenario.

However, before creating any expectations, we must answer the following question: "What are the drivers of the flotation of each business segment?"

Having this question as a starting point, the historical values of Novabase turnover were decomposed simultaneously by business segments and geography.

Accordingly, Table 10 shows the performance of each business segment as well as the percentage of turnover that derives either from national and international operations.

Thousands Euros	2008	2009	2010	2011	2012	2013
Business Solutions	78.500	82.500	88.900	89.600	97.612	102.309
Change (%)		*5%*	*8%*	*1%*	*9%*	*5%*
Portugal Turnover (%)	84%	62%	64%	69%	60%	55%
International Turnover (%)	16%	38%	36%	31%	40%	45%
IMS	92.000	84.800	94.900	86.000	101.856	98.444
Change (%)		*-8%*	*12%*	*-9%*	*18%*	*-3%*
Portugal Turnover (%)	89%	62%	55%	50%	57%	64%
International Turnover (%)	11%	38%	45%	50%	43%	36%
Digital TV	120.100	71.600	49.300	52.800		
Change (%)		*-40%*	*-31%*	*7%*		
Portugal Turnover (%)	27%	81%	87%	81%		
International Turnover (%)	73%	19%	13%	19%		
Venture Capital	1.400	2.500	3.200	1.200	12.732	16.077
Change (%)		*79%*	*28%*	*-63%*	*961%*	*26%*
Portugal Turnover (%)	100%	95%	94%	100%	83%	81%
International Turnover (%)	0%	5%	6%	0%	17%	19%
Novabase Turnover	292.000	241.400	236.300	229.600	212.200	216.830
Growth rate (%)		*-17%*	*-2%*	*-3%*	*-8%*	*2%*

Table 10 – Decomposition of Turnover by business segment and geography

Note: From the value of Digital TV turnover, 85% was incorporated in IMS segment whereas only 15% was merged to Venture Capital turnover.

According to the table above, the sources of the oscillations of turnover value over the years can be easily understood. Thus, following conclusions may be drawn:

[1] Business Solutions (BS): Now-a-days, 55% of Business Solutions turnover derives from international operations. The turnover of BS segment from international countries has been increasing significantly, mainly due to the expansion in African markets, justifying the positive evolution in the last years. Novabase aims to increase this ratio, gathering new clients and new

projects, not only in Mozambique (Novabase started its operations during the second semester of 2013), but also in other African countries, namely South Africa.

[2] Infrastructure and Managed Solutions (IMS): Contrarily to BS segment, Infrastructure and Managed Solutions segment presents a decrease in the international contribution in the last years. Additionally, the oscillations of its turnover results from the combination of two major factors: integration of Digital TV in 2012 and strong market pressure – as the majority of the projects arrived from Portuguese clients. Novabase's objective is to overcome the national economic crisis. Moreover, the international share is expected to continue decreasing due to the nature of the business. Consequently, IMS turnover growth rate will be lower when compared to BS.

[3] Venture Capital (VC): In 2013, the area of Venture Capital Fund of Innovation and Internationalization from Novabase Capital invested in SmartGeo Solutions. Due to this heavy investment in technological innovation with a focus on the international market, Novabase has been increasing significantly during the last two years – national and internationally.

Understanding the drivers and components of each segment, the growth rate and values for each segment can be more easily predicted. Thus, the following assumptions are used in Turnover computation:

[1] Business Solution segment will maintain 5% of growth rate until 2016, decreasing to 4% in perpetuity. Its main contribution will be the constant internationalization and increase of the operations in the African market that will lead to a stable growth scenario.

[2] Infrastructure and Managed Solutions turnover will continue decreasing until 2016, influenced by the national economic crisis. From 2018, IMS segment will achieve a positive growth rate (2%), as consequence of the prosperity and inherent increase of opportunities in terms of national projects;

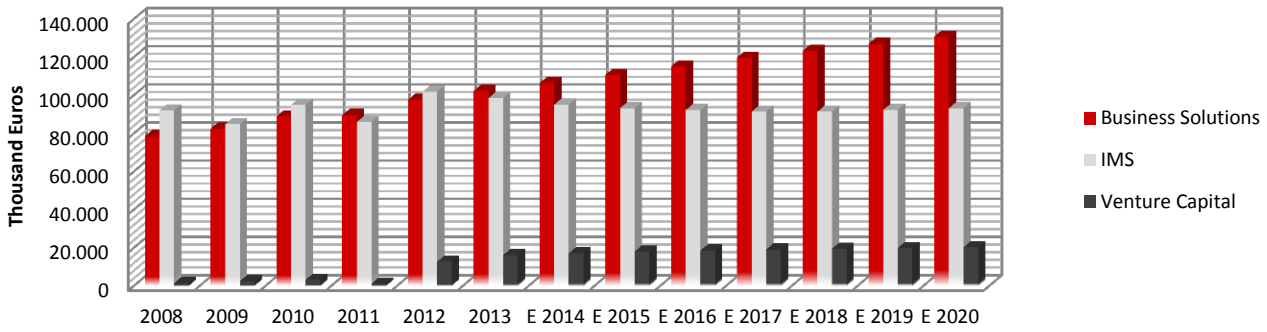
[3] Venture Capital segment will be stabilizing its operations and projects, not only in Portuguese but also in international markets. Thus, it will be reflected on its level of turnover.

Through the strong positioning in the European market and the achievement of greater economic opportunities in the African continent, Novabase will strongly increase its presence in foreign countries achieving until 2020 the following growth rates by each business segments and subsequent geography:

Thousand Euros	E 2014	E 2015	E 2016	E 2017	E 2018	E 2019	E 2020
Business Solutions	106.401	110.657	115.084	119.687	123.278	126.976	130.785
Change (%)	4%	4%	4%	4%	3%	3%	3%
Portugal Turnover (%)	52%	49%	46%	43%	40%	40%	40%
International Turnover (%)	48%	51%	54%	57%	60%	60%	60%
IMS	95.097	93.195	92.263	91.340	91.340	92.254	93.176
Change (%)	-3%	-2%	-1%	-1%	0%	1%	1%
Portugal Turnover (%)	66%	65%	66%	64%	62%	60%	58%
International Turnover (%)	34%	35%	34%	36%	38%	40%	42%
Venture Capital	17.122	17.978	18.517	19.073	19.454	19.844	20.240
Change (%)	6%	5%	3%	3%	2%	2%	2%
Portugal Turnover (%)	80%	80%	79%	79%	78%	78%	78%
International Turnover (%)	20%	21%	21%	21%	22%	22%	22%
Novabase Turnover	218.620	221.830	225.864	230.100	234.072	239.073	244.202
Growth rate (%)	1%	1%	2%	2%	2%	2%	2%

Table 11 – Turnover assumptions by business segment and geography

Following the assumptions considered, Graph 11 was sketched, in order to have a better perception of the evolution of the growth rates per segment over the years:



Graph 11 – Novabase turnover evolution by segments (in thousand Euros)

To simplify the subsequent analysis, the incorporation of Digital TV segment within IMS and Venture Capital segments were already assumed, justifying the high level of these two segments in 2012 and previous years.

3.1.1.2 Cost of Goods Sold

Having the values of turnover previously defined, it will be easier to achieve the values of subjacent costs, once these costs will be directly influenced and/or proportionate to turnover value.

Starting with Cost of Goods Sold (COGS), it traduces the inventory and raw materials that Novabase buys to ensure the stability of its operations and the creation of future economic benefits.

Infrastructure and Managed Services (IMS) is the most preponderant segment, contributing with 85% of the total COGS, due to the nature of its operation; contrasting with Business Solutions segment that is in charge of consulting projects, requiring higher level of labor force, instead of COGS.

From Novabase Annual Report of 2013, we were able to extract the following information related to the weight of each segment in terms of Cost of Goods Sold, comparing to the level of sales per segment:

	COGS	Sales
Business Solutions	2%	2%
IMS	85%	83%
Venture Capital	13%	14%

Table 12 – Weight of COGS and Sales by business segment

As can be confirmed, the COGS are directly related with the amount of sales. Additionally, it is important to highlight the fact that the sales total value represents 37% of the Novabase turnover, at 31st December 2013. Bearing in mind this relation, the COGS will be computed considering a constant percentage of the sales.

The table below presents the historical values of both components:

Thousands Euros	2008	2009	2010	2011	2012	2013
Sales	171.045	117.634	103.975	96.918	74.280	78.282
% of Turnover	*59%*	*49%*	*44%*	*42%*	*35%*	*37%*
Cost of Goods Sold	151.529	103.761	90.125	90.125	65.126	67.165
% of Sales	*89%*	*88%*	*87%*	*93%*	*88%*	*86%*

Table 13 – Historical values of Cost of Goods Sold and sales

By focusing on the information above, we can state that the value of COGS as a percentage of sales is relatively homogeneous, decreasing in the last 2 years, as a consequence of a combination of a higher efficiency of resources and the increase in the sale price of the products.

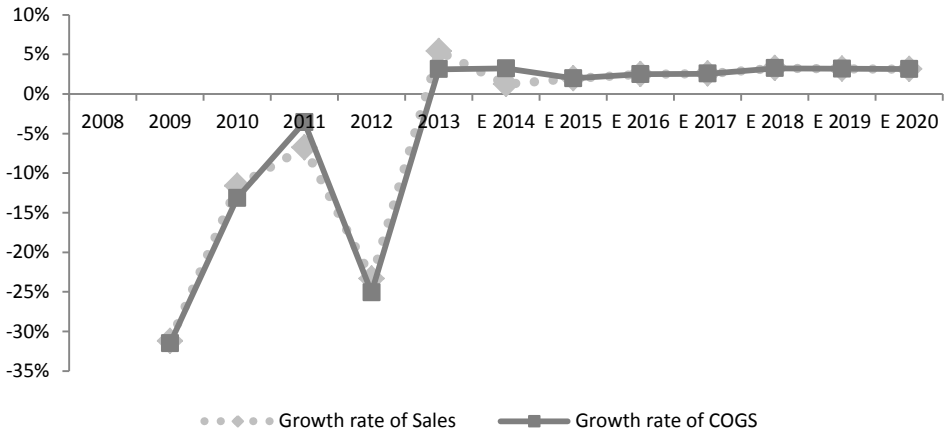
However, it can also be observed that the COGS represent a cyclical trend within every three years.

Thus, it was assumed that the COGS would increase as a percentage of sales, being this percentage, the average growth rate of the last 6 years. Accordingly to this information, the values of COGS were computed as can be seen in the table below:

Thousands Euros	E 2014	E 2015	E 2016	E 2017	E 2018	E 2019	E 2020
Sales	78.703	79.859	81.311	82.836	84.266	86.066	87.913
Sales % of Turnover	*36%*	*36%*	*36%*	*36%*	*36%*	*36%*	*36%*
Cost of Goods Sold	69.416	70.276	71.554	72.896	74.154	75.738	77.363
% of Sales	*88%*	*88%*	*88%*	*88%*	*88%*	*88%*	*88%*

Table 14 – Assumptions of Cost of Goods Sold

As expected, the COGS follow the tendency of the level of sales, representing similar growth rates, as follows:



Graph 12 – Comparison of Growth rates of Sales and COGS

3.1.1.3 External Supplies and Services

The value of External supplies and services can be analyzed as a function of revenues, or turnover. At a first stage, our objective is to understand how Novabase has been performing in terms of External supplies and services in the last years.

The external supplies and services item comprise the following type of costs, being the subcontracts the preponderant category:

	31.12.13	31.12.12
Subcontracts	27,382	26,942
Supplies and services		
Commissions and consultancy fees	7,578	8,227
Transportation, travel and accommodation expenses	7,566	6,627
Rents	4,390	3,907
Specialized services	1,563	1,819
Freight	728	469
Advertising and promotion	861	542
Water, electricity and fuel	930	1,010
Communications	991	929
Insurance	406	408
Utensils, office supplies and technical documentation	257	275
Other supplies and services	1,789	1,073
	27,059	25,286
	54,441	52,228

Picture 2 – Historical Information of Supplies and External Services (Source: Annual Report of 2013)

The costs of Subcontracts have an extreme importance to Novabase. It represents around 50% of the total of External Supplies and Services' costs.

In order to reach the value of External supplies and services, firstly, the cost per employee was computed, being indirectly the cost that Novabase will need to spend in exchange of the revenues earned by employee. Thus, it was necessary to observe the tendency of the number of employees of Novabase, in order to create an expectation for the future.

Table 15 displays the number of employees per year and the growth rate associated:

	2008	2009	2010	2011	2012	2013
Average Employees	1703	1861	2003	2109	2194	2170
Change (%)		*9%*	*8%*	*5%*	*4%*	*-1%*

Table 15 – Historical values of average Number of Employees

Novabase is one of the most important Portuguese IT company, which provides business solutions and IT services to their customers. Novabase vision is to increase its extend of clients and improve

the life of millions of people. This way, and in order to continue achieving higher level of revenues, Novabase will surely need to acquire higher level of human capital.

According to Novabase Annual Report of 2013, Novabase's intention is to "intensify the intellectual property ", applying not only to the higher number of employees, but also, the profitability and efficiency in their operations.

It was assumed that the number of employees will increase in the next years, in order to follow the growth rate of Novabase turnover covering Novabase needs.

The values assumed can be seen in the Table 16:

	E 2014	E 2015	E 2016	E 2017	E 2018	E 2019	E 2020
Average Employees	2213	2280	2348	2442	2540	2667	2800
Change (%)	*2%*	*3%*	*3%*	*4%*	*4%*	*5%*	*5%*

Table 16 – Average Number of Employees and related growth rate estimated

Through Appendix 1, it can be analyzed in more detail the average number of employees (both historical and estimated values), organized by business segment.

In Appendix 1, we can notice that the Business Solutions segment maintains its preponderancy compared to the other segments, due to the nature of Novabase core business.

Additionally, it is important to retain that, in terms of reporting, the Shared Services Costs are considered integrant part of Business Solutions segment.

Having the number of employees detailed by business segment, the value of Supplies and External Services was analyzed by understanding the weight of each segment's cost in the total cost and simultaneously reaching the average cost of employee per month, as presented in the Table 17:

Thousands Euros	2010	2011	2012	2013
Business Solutions	19.384	25.365	30.184	28.442
% of total	*38%*	*49%*	*58%*	*52%*
IMS	19.434	17.693	19.221	21.226
% of total	*39%*	*34%*	*37%*	*39%*
Digital TV	10.447	8.264		
% of total	*21%*	*16%*		
Venture Capital	1.113	398	2.823	4.773
% of total	*2%*	*1%*	*5%*	*9%*
External Supplies and Services	50.378	51.720	52.228	54.441
% of Turnover	21%	23%	25%	25%
Cost per Worker per month (€)	2.096	2.044	1.984	2.091
Growth rate of External Supplies and Services (%)		*-3%*	*-1%*	*-4%*

Table 17 – Historical values of Supplies and External Services and its drivers

Having these parameters in mind and according to IR's opinion, it was assumed that the average cost per worker per month would be slightly lower in term of absolute estimation in order to compensate the increase in the number of employees, reaching the following costs:

Thousands Euros	E 2014	E 2015	E 2016	E 2017	E 2018	E 2019	E 2020
Business Solutions	30.690	30.829	31.022	31.289	31.984	32.840	33.858
% of total	*57%*	*57%*	*57%*	*57%*	*57%*	*58%*	*58%*
IMS	21.620	21.723	21.741	21.897	22.166	22.500	22.882
% of total	*40%*	*40%*	*40%*	*40%*	*40%*	*39%*	*39%*
Venture Capital	1.608	1.616	1.621	1.616	1.625	1.623	1.626
% of total	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*
Supplies and External Services	53.918	54.168	54.384	54.801	55.774	56.963	58.366
% of Revenues	*25%*	*24%*	*24%*	*24%*	*24%*	*24%*	*24%*
Cost per Worker per month (€)	2.030	2.010	1.989	1.930	1.830	1.830	1.830
Growth rate of Total Supplies and External Services (%)	*-1%*	*0%*	*0%*	*1%*	*2%*	*2%*	*2%*

Table 18 – Assumptions of Supplies and External Services and its drivers

The distribution of this cost by segment was obtained in accordance to the perspective of the number of employees per segment, as presented in Appendix 1.

3.1.1.4 Employee benefit expense

The Employee Benefit Expenses include all the remuneration and compensation for Novabase employees. Here, Novabase supports the costs, not only, of wages and salaries, but also, of additional benefits such as: health insurance, educational benefits, among others.

In order to achieve the estimation for the value of employee benefit expense for Novabase employees, we computed the historical average employee benefit expense per month based on the average of historical number of employees per year.

The compilation of the mentioned information can be observed in Table 19:

Thousands Euros	2010	2011	2012	2013
Business Solutions	49.508	53.100	55.965	59.487
% of total	*65%*	*70%*	*74%*	*75%*
IMS	16.679	13.874	16.536	16.913
% of total	*22%*	*18%*	*22%*	*21%*
Digital TV	7.417	7.252		
% of total	*15%*	*14%*		
Venture Capital	2.003	1.984	3.434	3.408
% of total	*3%*	*3%*	*5%*	*4%*
Wages and Salaries	75.607	76.210	75.936	79.808
% of Revenues	*32%*	*33%*	*36%*	*37%*
Cost per Worker per month (€)	3.150	3.010	2.880	3.060
Change of Total Employee Benefit Expenses (%)		*-1%*	*0%*	*-5%*

Table 19 – Historical data of Employee benefit expense

Through the information displayed, we observe that the cost of employee per month have been relatively constant. According to Investor Relation of Novabase (IR), and having the same line of thought as the previous item, our belief is that the cost of employee per month will be lower in the following years in other to reach higher profitability.

Through Table 20, we present the values of employee benefit expenses, being directly influenced by the number of employees.

Thousands Euros	E 2014	E 2015	E 2016	E 2017	E 2018	E 2019	E 2020
Business Solutions	60.790	61.012	61.183	61.738	62.244	63.543	64.821
% of total	*77%*	*77%*	*77%*	*77%*	*77%*	*77%*	*77%*
IMS	15.486	15.641	15.638	15.908	16.169	16.668	17.170
% of total	*20%*	*20%*	*20%*	*20%*	*20%*	*20%*	*20%*
Venture Capital	2.344	2.357	2.360	2.359	2.353	2.353	2.349
% of total	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*
Wages and Salaries	78.620	79.009	79.181	80.004	80.766	82.564	84.340
% of Revenues	*36%*	*36%*	*35%*	*35%*	*35%*	*35%*	*35%*
Cost per Worker per month	3.050	3.010	2.970	2.920	2.890	2.890	2.890
Growth rate of Total Employee Benefit Expenses (%)	*-1%*	*0%*	*0%*	*1%*	*1%*	*2%*	*2%*

Table 20 – Assumptions of Employee benefit expense

The distribution of this cost by segment was obtained in accordance to the perspective of the number of employees per segment, already presented in Appendix 1.

3.1.1.5 Other operational Expenses

The last component, Other Operational Expenses, comprises the amount of restructuring cost and other gains of losses, such as: gains on the sale of shareholdings and provision for litigation in progress.

In Table 21, the historical information regarding this item is presented:

Thousands Euros	2008	2009	2010	2011	2012	2013
Restructuring costs	0	0	0	-3.496	0	0
Other gains/(losses) – net	-938	-109	1.947	-543	-725	-556
Other operational costs	-938	-109	1.947	-4.039	-725	-556
% of Turnover	*-0,3%*	*0,0%*	*0,8%*	*-1,8%*	*-0,3%*	*-0,3%*

Table 21 – Historical data of Other Operational Expenses

The presented values demonstrate a relatively stable tendency.

In 2011, Novabase undertook a restructuring project to improve the competitiveness of operations by reducing the unit cost of production. Simultaneously, also in 2011, Novabase had invested approximately 2 million euros, associated with building structures. According to IR, it was a necessary measure; however, similar costs are not required or expected in the next years.

Thus, it was assumed that the other operational costs would increase as a percentage of turnover, being this percentage equal to the average of the last 6 years.

The following table shows the values assumed:

Thousands Euros	E 2014	E 2015	E 2016	E 2017	E 2018	E 2019	E 2020
Restructuring costs	0	0	0	0	0	0	0
Other gains/(losses) - net	-743	-754	-768	-782	-796	-813	-830
Other operational costs	-743	-754	-768	-782	-796	-813	-830
% of Turnover	*-0,3%*	*-0,3%*	*-0,3%*	*-0,3%*	*-0,3%*	*-0,3%*	*-0,3%*

Table 22 – Assumptions of Other Operational Expenses

3.1.1.6 EBITDA

Once we have obtained the values for each of the items that influence the value of EBITDA, we are able to reach the value of this component in order to pursue our analysis on achieving the stock price of Novabase shares, at 31st December 2013.

In Table 23, it can be analyzed the combination of revenues and costs of each segment, reaching Novabase EBITDA:

Thousands Euros	2011	2012	2013	E 2014	E 2015	E 2016	E 2017	E 2018	E 2019	E 2020
Sales	96.918	74.280	78.282	78.703	79.859	81.311	82.836	84.266	86.066	87.913
Services rendered	132.715	137.795	138.548	139.917	141.972	144.553	147.264	149.806	153.007	156.289
Turnover	229.633	212.075	216.830	218.620	221.830	225.864	230.100	234.072	239.073	244.202
Cost of sales	-86.917	-65.126	-67.165	-69.416	-70.276	-71.554	-72.896	-74.154	-75.738	-77.363
External supplies and services	-51.720	-52.228	-54.441	-53.918	-54.168	-54.384	-54.801	-55.774	-56.963	-58.366
Employee benefit expense	-76.210	-75.936	-79.808	-78.620	-79.009	-79.181	-80.004	-80.766	-82.564	-84.340
Other operational costs	-4.039	-725	-556	-743	-754	-768	-782	-796	-813	-830
EBITDA	10.747	18.060	14.860	15.922	17.623	19.977	21.617	22.582	22.995	23.302
% of Turnover	*5%*	*9%*	*7%*	*7%*	*8%*	*9%*	*9%*	*10%*	*10%*	*10%*

Table 23 – Assumptions and Historical value of EBITDA and its components

As expected, our belief in terms of the level of EBITDA as percentage of the Turnover is positive.

It is increasing as result of the strong effort of intensifying the internationalization, especially in emerging markets. Moreover, there will be an intensive determination on reaching innovative projects and new prospects in terms of national opportunities.

According to the Guidance 2014, released by Novabase in March 2014, Novabase is expecting, for 2014, an EBITDA between 14 and 17 Million Euros. In addition, the value of turnover is expected to be around 220 Million Euros.

As can be seen in Table 23, our expectations meet these guidelines, being a starting point to reach the closest estimation for Novabase stock price.

In Appendix 2, it is possible to find the disaggregation of EBITDA by Business Segment.

3.1.1.7 Capital Expenditures

In accordance to the nature of Novabase operations and its main needs, the item of Capital Expenditures (also CAPEX) is composed essentially by Intangible Assets, such as: R&D, Industrial Property and other rights and Goodwill.

Even though it is not so significant, Novabase also acquires Tangible Assets necessary to facilitate employees' daily routine, such as: Transportation, equipment, buildings and other tangible assets.

Novabase invests, on average, every year, around 4 million euros on intangible assets. From this value, around 2 million euros are still considered Intangible Assets in progress, being the remaining assets already ready to be used in its operations.

Novabase classifies the Intangible assets in progress as those assets that require installation and development before being operational. Every year, around 1 million euros of assets in this item, are transferred to Intangible Assets.

Furthermore, we also verify that around 2 million of intangible assets are sold or expire, on average, every year.

In Table 24, the evolution of the Capital Expenditures in the last years can be observed, according to the presented categories:

Thousands Euros	2008	2009	2010	2011	2012	2013
Intangible assets in Progress	-	300	1.000	900	400	900
% of total	*-*	*300%*	*24%*	*21%*	*31%*	*56%*
Intangible Assets	2.300	(1.600)	1.700	1.600	1.200	800
% of total	*-30%*	*-1600%*	*41%*	*38%*	*92%*	*50%*
Tangible Fixed Assets	(10.000)	1.400	1.400	1.700	(300)	(100)
% of total	*130%*	*1400%*	*34%*	*40%*	*-23%*	*-6%*
Capital Expenditures	(7.700)	100	4.100	4.200	1.300	1.600
% of Turnover	*-2,6%*	*0,0%*	*1,7%*	*1,8%*	*0,6%*	*0,7%*

Table 24 – Historical value of CAPEX and its components

Analyzing the historical values, we observe that, on average, the value of Capital Expenditures is approximately 1% of the Novabase turnover.

Moreover, as can be seen in Table 24, Novabase shows a regular tendency in terms Intangible Assets and Intangible Assets in Progress. Regarding to Tangible Assets' item, a stronger investment in transportation was made in 2009, 2010 and 2011.

It was assumed that the value of Capital Expenditures will vary as percentage of turnover, being this percentage equal to the average of the weight of CAPEX over Turnover from the 3 previous years. Table 25 summarizes our projections as well as the inherent assumptions:

Thousands Euros	E 2014	E 2015	E 2016	E 2017	E 2018	E 2019	E 2020
Intangible assets in Progress	800	900	1.000	1.000	900	900	900
% of total	35%	38%	42%	41%	36%	36%	35%
Intangible Assets	1.200	1.200	1.200	1.200	1.200	1.200	1.200
% of total	52%	51%	50%	49%	48%	47%	46%
Tangible Fixed Assets	(200)	300	200	200	300	300	300
% of total	-9%	13%	8%	8%	12%	12%	12%
Capital Expenditures	2.317	2.351	2.394	2.439	2.481	2.534	2.588
% of Turnover	1,1%	1,1%	1,1%	1,1%	1,1%	1,1%	1,1%

Table 25 – Assumed values of the value of Capital Expenditures

3.1.1.8 Depreciation and Amortization

The value of Depreciation and Amortization (D&A from here onwards) represents a decrease in the value of the assets, both in tangible and intangible assets, respectively.

The value of D&A was obtained through the application of a depreciation and amortization rate, computed based on the average rates of the previous years. This mentioned rate represents the average percentage of the item over the gross value of the respective asset.

Table 26 presents both the historical values and the assumed values for depreciation for the explicit period. The historical average of the depreciation rate was 17%, being the one applied for subsequent years.

Thousands Euros	2011	2012	2013	E 2014	E 2015	E 2016	E 2017	E 2018	E 2019	E 2020
Gross value of Tangible Assets	18.628	18.324	18.142	18.042	18.292	18.892	18.992	18.092	17.392	17.042
Depreciation	3.166	2.975	2.962	3.009	3.051	3.151	3.167	3.017	2.901	3.178
Depreciation as % of Tang. Assets	17%	16%	16%	17%	17%	17%	17%	17%	17%	17%

Table 26 – Historical and assumed values for Depreciation and Tangible Assets

Regarding amortization estimation, it was applied the same line of thought, being the historical average amortization rate around 7%. In Table 27, both historical and assumed values for amortizations are shown, being directly related to the Gross Value of the Intangible Assets.

Thousands Euros	2011	2012	2013	E 2014	E 2015	E 2016	E 2017	E 2018	E 2019	E 2020
Gross Value of Intangible Assets	41.903	43.535	45.286	45.282	45.499	45.679	45.413	45.540	45.248	44.976
Amortization	2.959	2.782	2.769	2.943	2.957	2.969	2.952	2.960	2.941	2.923
Amortization as % of Intang. Assets	7%	6%	6%	7%	7%	7%	7%	7%	7%	7%

Table 27 – Historical and assumed values for Amortization and Intangible Assets

The reasonability behind the values estimation for tangible and intangible assets was previously justified in the CAPEX value estimation topic, a Section 3.1.1.7 – Capital Expenditures.

Thousands Euros	2011	2012	2013	E 2014	E 2015	E 2016	E 2017	E 2018	E 2019	E 2020
Gross Value of Assets	60.531	61.859	63.428	64.159	64.907	66.310	67.747	67.659	67.597	67.661
Depreciation and amortization	6.125	5.757	5.731	6.169	6.245	6.432	6.621	6.564	6.508	6.471
D&A as % of the Assets	10%	9%	9%	10%	10%	10%	10%	10%	10%	10%

Table 28 – Historical and assumed values of D&A

3.1.1.9 Change in Net Working Capital

The value of Net Working Capital (NWC) represents the level of cash that Novabase will require in its operation and daily routine. In other words, it is the short term financing to ensure the future payment of current assets, as inventories. The value of NWC was reached through the difference between the value of Current Assets and Current Liabilities.

According to the data available, the value of Current Assets was composed by Inventories, Trade and Other Receivables and Other Current Assets; whereas the level of Current Liabilities is exclusively the value of Trade and Other Payables.

Similarly to Capital Expenditures item, being an operational item, the NCW is influenced by the level and growth rate of revenues. Consequently, our first step was to analyze the historical values and reach the percentage of NWC over the total turnover.

In accordance with historical information, the average percentage of NWC over Turnover was 18%, as can be observed in Table 29. Following the same rationale, the values of NWC were obtained, being the Change in NWC the difference of NWC from one year to the following.

Thousand Euros	2010	2011	2012	2013	E 2014	E 2015	E 2016	E 2017	E 2018	E 2019	E 2020
Current Assets											
Inventories	10.403	6.909	4.474	8.925	7.750	7.828	7.914	8.001	8.089	8.178	8.284
Trade and other receivables	83.285	92.830	92.489	85.296	88.773	89.661	90.647	91.644	92.652	93.671	94.889
Other current assets	4.179	5.236	4.769	5.818	5.016	5.067	5.122	5.179	5.236	5.293	5.362
Sub-total (1)	97.867	104.975	101.732	100.039	101.539	102.555	103.683	104.823	105.977	107.142	108.535
Current Liabilities											
Trade and other payables	57.101	60.935	61.722	63.004	63.062	62.750	63.154	63.534	63.974	64.243	64.715
Sub-total (2)	57.101	60.935	61.722	63.004	63.062	62.750	63.154	63.534	63.974	64.243	64.715
Net Working Capital (1)+(2)	39.839	43.732	39.940	36.965	38.477	39.805	40.529	41.289	42.002	42.899	43.820
NWC as % of Turnover	17%	19%	19%	17%	18%	18%	18%	18%	18%	18%	18%
Change in Net working capital	-2.585	3.893	-3.792	-2.975	1.512	1.328	724	760	713	897	920

Table 29 – Historical and assumed values for Change in Net Working and its components

3.1.1.10 Income Taxes

In accordance to the recent releases, we verify a reduction of 2% on the level of income tax rate in 2014, being predicted to achieve 21% in 2015.[59]

According to the same source, the government pretends to stabilize in 2016, by fixing at a level between a 17% and 19%.

Subsequently, the value of income taxes was achieved, as can be analyzed in the following table:

	E 2014	E 2015	E 2016	E 2017	E 2018	E 2019	E 2020
T_1 (%)	23%	21%	17% to 19%	17% to 19%	17% to 19%	17% to 19%	17% to 19%
T_2 (%)	23%	21%	18%	18%	18%	18%	18%

Table 30 – Tax rates according to Tax Reform and applied to Novabase Valuation

Where, T_1 (%) represents tax rates according to Tax Reform, already mentioned, and T_2 (%) give us the tax rate to value Novabase stock price. The only change is the consideration of the average predicted rates for the explicit period between 2016 and 2020.

Additionally, the state and municipal surcharge applied in accordance to the level of taxable income can be observed in Table 31:

Municipal Surcharge	1,5%
State Surcharge	
From 1,5 M€ to 7,5 M€	3%
From 7 M€ to 35 M€	5%
Higher than 35 M€	7%

Table 31 – State and municipal surcharge rates

[59] http://www.pwc.pt/pt/eventos/imagens/2013/pwc_o_essencial_do_oe2014.pdf

3.1.1.11 Free Cash Flow to the Firm (FCFF)

Having defined all the necessary assumptions for each require component, the values of FCFF were reached, as can be seen in Table 32:

Thousand Euros	E 2014	E 2015	E 2016	E 2017	E 2018	E 2019	E 2020
EBITDA	15.922	17.623	19.977	21.617	22.582	22.995	23.302
EBIT	9.503	11.082	13.362	14.674	15.457	15.691	15.795
EBIT (1-T)	6.890	8.034	10.088	11.079	11.670	11.846	11.925
CAPEX	-2.317	-2.351	-2.394	-2.439	-2.481	-2.534	-2.588
Depreciation and Amortization	5.966	6.014	5.920	5.711	5.535	5.392	5.307
Change in Net Working Capital	1.512	1.328	724	760	713	897	920
Free Cash Flow to the Firm (FCFF)	9.026	10.368	12.890	13.590	14.011	13.807	13.724

Table 32 – FCFF components and values

3.1.2 Cost of Capital Assumptions

As previously stated in Section 1 – Literature Review, the following step on reaching the value of Novabase Enterprise value is to achieve the value of WACC, representing Novabase Cost of Capital. Firstly, we will remind WACC's way of calculation, in order to better understand the subsequent topics and inherent assumptions:

$$WACC = K_e \times \frac{MV\ of\ Equity}{Enterprise\ Value} + K_d(1-t) \times \frac{MV\ of\ Debt}{Enterprise\ Value}$$

As a result, in order to reach the value of Novabase, we will start to present Cost of Equity value and subjacent assumptions.

3.1.2.1 Cost of Equity

The Cost of Equity (K_E) was obtained through CAPM, being the formula already presented in Section 1. Consequently, we will present the assumptions in accordance to each of the CAPM components:

I. Risk-free Rate

To value the Risk Free Rate, it was considered a 10 - year German Bund. Its yield was 1.93%, at 31st of December 2013.

II. Beta

The Beta used to value Novabase Cost of Equity, was obtained from Bloomberg. Beta value was 0.89.

III. Market Risk Premium

The Market Risk Premium (MRP) was assumed based on Fernandez[60] calculations. Thus, considering the average MRP of Portugal, we considered a MRP of 6.1%.

[60] http://www.netcoag.com/archivos/pablo_fernandez_mrp2013.pdf

IV. Country Risk Premium

The Country Risk Premium (CRP) considered to value Novabase Cost of Equity, was defined based on weighted turnover of its major countries of operation.

Having the data from Section 2 in mind, regarding turnover distribution by geography in 2013 and using Damodaran estimations of Country Risk Premium[61], the value of Country Risk Premium achieved was 5%, as can be confirmed in Table 33:

	Weight of Total Turnover	CRP	CRP Weighted
European countries			
Portugal	65%	5.4%	3,5%
Spain	2%	3.3%	0,1%
Germany	1%	0.0%	0,0%
Rest of Europe (France, UK)	3%	0.6%	0,0%
African Contrives			
Angola	17%	5.4%	0,9%
Mozambique	7%	6.8%	0,5%
Asia			
China	2%	0.9%	0,0%
Middle East			
United Arab Emirates	3%	0.8%	0,0%

Country Risk Premium	5%

Table 33 – Country Risk Premium by countries

Once, we have defined all the inherent components, we achieve a cost of equity of 12.3%, as presented in Table 34:

Risk Free-Rate	1.93%
Novabase Beta	0.89
Market Risk Premium	6.1%
Country Risk Premium	5.0%
Cost of Equity	12.3%

Table 34 – Cost of Capital components

[61] Damodaran Presentation: http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html

3.1.2.2 Cost of Debt

As already mentioned, Novabase does not have debt issued in the market. So, in order to reach a reliable value of Novabase Cost of Debt, we based on Damodaran[62] methodology.

Once Novabase is not rated, we started by estimating a synthetic rating based on Novabase Interest Coverage ratio, in order to compare the financial characteristics of the firm.

The Interest Coverage ratio is given by the relation between EBIT and Interest Expenses. Thus, having the most recent data in consideration, based on Novabase Annual Report for 2013, we reached an Interest Coverage ratio of 1.97.

According to Damodaran, an Interest Coverage ratio of 1.93 corresponds to a rating of BB, representing a typical default spread of 2.25% and a market interest on debt of 6.25%.

Having previously defined the risk free rate of 1.93%, being the 10 - year German Bund at 31st of December 2013, we reach a Cost of Debt of 4.18% and an After-tax Cost of Debt of 3.14%, as is possible to analyze in the following table:

Default Spread	2,25%
Risk Free Rate	1,93%
Cost of Debt	4,18%
After-tax Cost of Debt	3,14%

Table 35 – Cost of Debt components and calculation

Thus it was assumed that Novabase Cost of Debt will be 4.18%.

[62] Damodaran Presentation: http://people.stern.nyu.edu/adamodar/pdfiles/country/levvalue.pdf

3.1.2.3 Leverage Ratio

In order to obtain the leverage ratio or Debt to Equity ratio, we started by computing the Market Value of Debt.

As previously stated, once Novabase has no bonds issued, the Market Value of Debt was computed based on Damodaran[63] methodology. Reminding the values achieved, it was considered the risk free rate of 1,93%, being the 10 - year German Bund at 31st of December 2013. Consequently, we reach a Cost of Debt of 4,18% and an After-tax Cost of Debt of 3,14.

At 31st of December 2013, Novabase had a Book Value of Debt of 20.233.000 Euros, an amount of interest expenses of 4.721.000 Euros and Weighted Average Maturity of 1,98 years. Based on this information, we estimated a Market Value of Debt of 30.416.089 Euros.

Knowing that at 31st of December 2013, the close price per share was 2,51 Euros and the number of shares was 31.132.490, the Market Value of Equity was 78.142.550 Euros.

Close price per share (€)	2,51
Number of Shares (units)	31.132.490
Equity (€)	78.142.550

Table 36 – Market value of Equity decomposition

Consequently, we reach a Leverage ratio or Debt to Equity ratio of 39% for the firm. Thus, the weight of Debt and Equity over the total market value of the firm was the following:

Leverage Ratio	39%
D/V	27%
E/V	73%

Table 37 – Leverage Ratio assumed

[63] Damodaran Presentation: http://people.stern.nyu.edu/adamodar/pdfiles/country/levvalue.pdf

3.1.2.4 WACC

Having all the mechanisms calculated, we reached the value of WACC of 9,9%.

Cost of Equity (K_E)	12,3%
Cost of Debt (K_D)	4,2%
D/V	27%
E/V	73%
T	23%
WACC	9,9%

Table 38 – WACC's components and value assumed

According to Novabase Annual Report, the Weighted Average Cost of Capital assumed was 10.4%, giving us more confidence in our WACC estimation.

3.1.3 Novabase Enterprise Value

In order to reach the value of Novabase stock price, at 31st of December 2013, we still need to consider some assumptions.

Starting with the assumptions to estimate the Novabase Enterprise Value, firstly we need to achieve the Terminal Value, requiring a constant growth rate in perpetuity.

Novabase has around 65% of its operations in the Portuguese territory. Thus, the growth rate in perpetuity for Novabase was assumed the forecast GDP for Portugal.

Through OECD (Organização para a Cooperação e Desenvolvimento) forecasts[64], we extracted information of last updates (from May 2014), in accordance to the nominal GDP for Portugal from 2012 to 2015, as presented in Table 39:

European Economic Forecast Spring 2014				
Forecasts for Portugal	2012	2013	2014	2015
GDP growth (%, yoy)	-3,2	-1,4	1,2	1,5
Inflation (%, yoy)	2,8	0,4	0,4	1,1

Table 39 – Forecasts of GDP and Inflation rate according to European Commission

We assume a growth rate for Novabase in perpetuity approximately higher than the one verified in 2015. Thus, we assume a growth rate in perpetuity of 2%.

Following this line of thought, we reach a terminal value of 174.768.758 Euros. Consequently, the Novabase Enterprise Value is 148.260.945 Euros.

[64] http://www.oecd.org/berlin/50405107.pdf

3.1.4 Novabase Equity Value

Having the value of Novabase Enterprise Value, our following step is to deduct the Market Value of Debt, Non-controlling interests and other significant impacts, in order to reach the Novabase Equity Value.

3.1.4.1 Market Value of Debt

As previously stated, we reach a Market Value of Debt of 30.416.089 Euros.

3.1.4.2 Non-Controlling Interests and additional items

The following phase is to extract the value of Non-Controlling Interests and add the companies' values that should be considered in Novabase valuation.

According to the Annual Report of 2013, the value of Non-Controlling Interests was 11.522.000 Euros. In addition, we verify that Novabase has an investment in associates, which its main associate is Fundo Capital Risco NB Capital. Once the company is not traded, we consider the value achieved by Novabase. The invested capital represents around 3.076.000 Euros.

Finally, adding the value of Financial Assets at Fair value to Novabase Equity value (once it is the value of participations in held firms that should be considered to Novabase valuation), we reach a value of Novabase Equity of 100.362.116 Euros.

3.1.5 Novabase Target Price

Keeping in mind the inputs already presented, in Table 40, we summarize the information and basis for calculation for Novabase stock price.

Novabase Enterprise Value	148.260.945
- Market Value of Debt	-30.416.089
- Non Controlling Interests	-11.522.000
+ Fundo Capital Risco NB Capital	3.076.000
+ Financial assets at fair value	1.256.000
Shareholders' Equity	110.654.856
Number of shares outstanding at 31st December 2013	31.132.490
Target Price at 31st December 2013	3,55

Table 40 – Novabase Target price

At 31st of December 2013, Novabase had 31.132.490 shares, meaning that Novabase target price per share through Free Cash Flow to the Firm Valuation is 3,55 Euros.

Based on our expectations, we believe that it is a reasonable value. Novabase stock price at 31st of December 2013 was 2,51 Euros, representing an upside on the stock price of 41%.

Consequently, the recommendation is to Buy, given the upside higher than 20%.[65]

[65] According to recommendation levels of European Securities Network Recommendation System

3.1.6 Sensitivity Analysis

As deliberated in the previous chapters, to reach the closest estimation to Novabase target price, we carefully consider several assumptions.

In this sub-chapter, our objective is to understand how the changes in the values of perpetuity growth rate, WACC and Leverage ratio (that are the most significant assumptions in our valuation), will impact our target price.

Consequently, we obtained the values of Novabase stock price, considering the changes in perpetuity growth rate of the interval between 0.5% to 3.5% and the WACC values from 8% to 12%.

In Table 41, we summarize the information obtained through calculations:

		Perpetuity Growth Rate (%)						
		0,5%	1,0%	1,5%	2,0%	2,5%	3,0%	3,5%
WACC (%)	8,0%	4,15	4,40	4,68	5,01	5,40	5,87	6,44
	8,5%	3,82	4,02	4,26	4,53	4,85	5,23	5,68
	9,0%	3,52	3,70	3,90	4,13	4,39	4,70	5,07
	9,5%	3,26	3,41	3,58	3,77	4,00	4,25	4,55
	10,0%	3,02	3,15	3,30	3,55	3,66	3,87	4,12
	10,5%	2,83	2,94	3,07	3,20	3,38	3,57	3,75
	11,0%	2,62	2,72	2,84	2,96	3,10	3,26	3,43
	11,5%	2,45	2,54	2,64	2,75	2,87	3,00	3,15
	12,0%	2,30	2,38	2,46	2,56	2,66	2,78	2,91

Table 41 – Novabase share prices according to different WACC and Perpetuity Growth rate

According to Table 41, we notice that the impacts on the value of Novabase stock price caused by changes in the value of WACC are more significant when compared to the changes in the values of perpetuity growth rate. However, Novabase stock price does not change significantly with changes in the value of those indicators.

Additionally, we consider important to simultaneously analyze the impact of leverage ratio and WACC in the value Novabase stock price.

Analyzing this variable, we are able to understand how the change in the Debt to Equity ratio influences our valuation. In Table 42, we present our main findings:

WACC (%)	Debt to Equity Ratio (%)						
	18%	21%	25%	27%	33%	38%	43%
8,0%	5,06	4,90	4,75	5,01	4,43	4,28	4,12
8,5%	4,65	4,51	4,36	4,53	4,08	3,93	3,79
9,0%	4,30	4,17	4,04	4,13	3,77	3,64	3,50
9,5%	4,00	3,88	3,76	3,77	3,51	3,38	3,26
10,0%	3,74	3,63	3,51	3,55	3,28	3,16	3,04
10,5%	3,51	3,40	3,29	3,20	3,07	2,96	2,85
11,0%	3,31	3,21	3,10	2,96	2,90	2,79	2,69
11,5%	3,13	3,03	2,93	2,75	2,74	2,64	2,54
12,0%	2,97	2,88	2,78	2,56	2,59	2,50	2,40

Table 42 – Novabase share prices according to different WACC and Leverage ratio

In accordance to Table 42, we conclude that a negative change in the leverage ratio will increase our target price per share.

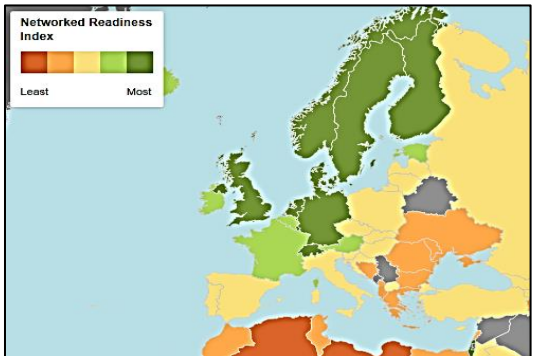
3.2 Relative Valuation

As previously mentioned in the Literature Review, the second method chosen to value Novabase stock price is the Relative Approach. In this section we develop the Multiples Valuation, presenting the inherent assumptions.

This approach is based on the stock price of the peer companies, applying the estimation of similar assets. The first important step is to establish the Novabase peer group, based on the characteristics of the industry, stability of leverage, growth opportunities, among other indicators.

Being the Portuguese IT-services company leader, Novabase has as reference other European companies with similar characteristics and same core business. We gather the performance of companies in Spain, Ireland and France due to the similar growth opportunities.

According to the Report of Global Information Technology[66], implemented annually by World Economic Forum, we confirm choice countries to create the peer group. The Picture 3 presents the information of European countries related to IT opportunities and expansion.



Picture 3 – Relative IT performance of European countries (Source: Report of Global Information Technology of 2013)

To have a better overview, we extract the Top 50 countries in accordance to the IT performance, as can be analyzed in Appendix 3. Note that, besides having similar ranking, we decided to exclude Italy from our peer group choice, due to the poor performance in 2013 – Portugal achieved the 33rd position against the 50th position for Italy.

[66] http://www.weforum.org/issues/global-information-technology

Secondly, to choose the peer group we considered the nature of the industry – IT services. Consequently, due to the nature of the industry – services, we believe that we should focus on the expected level of revenues, the expected growth rate in earnings and the number of employees. Once, we were not able to access the information of the number of the employees for several companies, we focused on the first two indicators.

To reach Novabase peer group, we consider the latest information of Damodaran databases[67].

Having the criteria in mind, we considered the companies with expected growth rate of revenues in the next 2 years from 0% to 3%, in order to select the companies with similar growth perspectives to Novabase.

In the previous sub-chapter, we consider that the expected growth rate of revenues for the next 2 years for Novabase is 2%. As a result, we reached the following peer group:

Company Name	Industry Group	Country	Expected growth of Revenues - Next 2 years	Expected growth in EPS - Next 5 years
Ausy SA	Computer Services	France	2,99%	12,80%
Alten SA	Computer Services	France	2,97%	4,13%
Indra Sistemas, S.A.	Computer Services	Spain	1,80%	6,16%
Groupe Steria SCA	Computer Services	France	1,15%	8,13%
Cap Gemini S.A.	Computer Services	France	0,86%	10,10%
		Average	1,95%	8,26%

Table 43 – Novabase Peer Group considered in Relative Valuation

In accordance to Section 1 - Literature Review, we consider to value Novabase through PER, PEG, EV/ EBIT and EV/EBITDA.

[67] Damodaran Presentation: http://www.stern.nyu.edu/~adamodar/pc/datasets/Eurocompfirm.xls

Furthermore, having the peer group defined, we compute the price per share based on each multiple, as presented in Table 44.

Company Name	Price to Earnings	PEG	EV/EBIT	EV/EBITDA
Ausy SA	9,35	0,73	10,8	6,99
Alten SA	14,22	3,44	10,49	8,56
Indra Sistemas, S.A.	15,71	2,55	10,77	10,83
Groupe Steria SCA	13,29	1,63	14,44	7,02
Cap Gemini S.A.	21,85	2,16	9,34	8,82
Average	14,88	2,10	11,17	8,44

EV based on Peer Group	137.652.606	164.130.487	95.082.295	137.309.736
Price based on Peer Group	4,42	5,27	3,05	4,41

Average price based on Peer Group	4,29

Table 44 – Components and outputs of Relative Valuation

Through the Table 44, we observe that the multiples vary in the interval between 3,05 and 5,27 Euros.

The closest price, to the Discounted Cash-Flow valuation, is through EV/EBIT ratio. On the other hand, the PEG ratio returns the higher value, being far from our expectation.

Computing the average of the prices resulted from each multiple, at 31st of December 2013, Novabase reach a price per share through Relative Valuation of 4,29 Euros.

However, we consider that the price does not reflect the Novabase Enterprise Value, once it is based on relative estimations. Due to this fact, our target price will be exclusively based on Discounted Cash-Flow valuation.

3.3 Investment Bank Research Note Comparison

In this last section, we present the most important findings of our valuation comparing with the target price of the Research Note of Caixa BI.[68]

At 31st of December 2013, the target price of Caixa BI was 4 Euros, representing an upside of 51%.

Starting our comparison with Turnover and EBITDA assumptions, we summarize the information by segments, as can be observed through the Table 45:

	2013		2014		2015	
	Caixa BI	Thesis	Caixa BI	Thesis	Caixa BI	Thesis
Turnover	215.900	216.830	227.000	218.620	242.000	221.830
BS	100.100	102.309	105.246	106.401	112.201	110.657
IMS	101.500	98.444	106.718	95.097	113.770	93.195
VC	14.300	16.077	15.035	17.122	16.029	17.978
EBITDA	15.900	14.860	18.500	17.140	21.300	19.653
BS	12.000	11.190	13.962	12.716	16.075	15.529
IMS	4.800	4.118	5.585	4.769	6.430	4.249
VC	-900	-448	-1.047	-345	-1.206	-124
EBITDA/Turnover	7%	7%	8%	8%	9%	9%
BS	12%	11%	13%	12%	14%	14%
IMS	5%	4%	5%	5%	6%	5%
VC	-6%	-3%	-7%	-2%	-8%	-1%

Table 45 – Investment Bank comparison of Turnover and EBOTDA values

Here we observe that we have a more optimistic valuation for Novabase Turnover in 2013 compared to Caixa BI analysis, inverting this trend in the following years. Our expected growth rate of revenues in the next 2 years were 2,3%, against the 12% growth rate assumed by Caixa BI.

In terms of assumptions related to turnover by segment, the main difference verified is the proportion of IMS in the total turnover. While we believe that IMS turnover will decrease (due to the lower presence in foreign countries compared to BS), Caixa BI considers that it will increase similarly proportions to BS segment.

[68] Investment Bank Platform of Caixa Geral de Depósitos Group

Secondly, we analyzed the values of FCFF components and assumptions of the next 2 years, as presented in the Table 46:

	2013		2014		2015	
	Caixa BI	Thesis	Caixa BI	Thesis	Caixa BI	Thesis
EBITDA	15.900	14.860	18.500	17.140	21.300	19.653
EBIT (1-T)	7.700	6.890	9.200	8.034	11.000	10.088
CAPEX	-6.400	-2.317	-6.700	-2.351	-7.100	-2.394
D&A	5.800	5.966	6.100	6.014	6.500	5.920
Change in NCW	1.900	-1.512	-3.700	-1.328	-2.900	-724
FCFF	9.000	9.026	4.900	10.368	7.500	12.890

Table 46 – Investment Bank comparison of FCFF and its components

The main difference, comparing both valuations, refers to the higher level of Capital Expenditures that Caixa BI expects that Novabase will incur. These assumptions are in line with turnover growth rate, previously mentioned, once Caixa BI expects Novabase to have higher turnover requiring higher amount of invested capital. Consequently, due to this fact, we are expecting higher level of FCFF compared to Caixa BI valuation.

Finally, we verify the value of WACC assumed by Caixa BI was the following, compared to our valuation:

	Caixa BI	Thesis
WACC	9,7%	9,9%

Table 47 – Investment Bank comparison of Cost of Capital

The Caixa BI assumed a cost of capital relatively lower compared to the presented valuation. It is caused essentially by the lower cost of equity.

In summary, we conclude that Caixa BI Research Note expects a lower value of WACC, justifying the higher target price per share.

Conclusion

Throughout this dissertation, we explored the most appropriate ways to value Novabase. After an extensive research of the existing valuation models, we decided to value Novabase through Discounted Cash-Flow and Relative valuation. Despite achieving similar prices, we find more appropriate to select the Discounted Cash-Flow valuation.

The target price per share is 3,55€, given by the DCF valuation. It reflects the expected increase of the revenues and earnings, as result of the higher efficiency and the increase of partnerships in Africa. Thus, our recommendation is to Buy.

Appendix

1. Appendix 1

Decomposition of the average number of employees by business segment:

	2011	2012	2013	E 2014	E 2015	E 2016	E 2017	E 2018	E 2019	E 2020
Average Employees per year	2109	2194	2170	2213	2280	2348	2442	2540	2667	2800
Change (%)	5%	4%	-1%	2%	3%	3%	4%	4%	5%	5%
Business Solutions	1335	1428	1571	1602	1650	1702	1771	1841	1933	2030
% Growth rate	*6%*	*7%*	*10%*	*2%*	*3%*	*3%*	*4%*	*4%*	*5%*	*5%*
% of total	*63%*	*65%*	*72%*	*72%*	*72%*	*73%*	*73%*	*73%*	*73%*	*73%*
IMS	345	602	426	436	451	464	486	508	538	570
% Growth rate	*19%*	*74%*	*-29%*	*2%*	*4%*	*3%*	*5%*	*5%*	*6%*	*6%*
% of total	*16%*	*27%*	*20%*	*20%*	*20%*	*20%*	*20%*	*20%*	*20%*	*20%*
Digital TV	283									
% Growth rate	*-8%*									
% of total	*13%*									
Venture Capital	47	66	65	66	68	70	72	74	76	78
% Growth rate	*9%*	*40%*	*-2%*	*2%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*
% of total	*2%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*
Shared Services	99	98	108	109	110	112	114	116	119	122
% Growth rate	*-1%*	*-1%*	*10%*	*1%*	*1%*	*2%*	*2%*	*2%*	*3%*	*3%*
% of total	*5%*	*4%*	*5%*	*5%*	*5%*	*4%*	*4%*	*4%*	*4%*	*4%*

Note: According to the Annual Report of 2013, in terms of reporting, the Shared Services Costs were considered an integrant part of Business Solutions segment.

2. Appendix 2

Components of the value of EBITDA by business segment:

Thousand Euros	2011	2012	2013	E 2014	E 2015	E 2016	E 2017	E 2018	E 2019	E 2020
Business Solutions										
Turnover	89.600	97.612	102.309	106.401	110.657	115.084	119.687	123.278	126.976	130.785
COGS	(650)	(1.834)	(1.095)	(1.249)	(1.644)	(2.846)	(3.886)	(5.534)	(6.783)	(7.621)
External supplies and services	(25.365)	(30.184)	(28.442)	(30.690)	(30.829)	(31.022)	(31.289)	(31.984)	(32.840)	(33.858)
Employee benefit expense	(53.100)	(55.965)	(59.487)	(60.790)	(61.012)	(61.183)	(61.738)	(62.244)	(63.543)	(64.821)
Other gains or losses	(1.298)	2.693	(2.095)	(2.248)	(2.251)	(2.256)	(2.261)	(2.265)	(2.271)	(2.277)
EBITDA	9.187	12.322	11.190	11.424	14.921	17.776	20.514	21.251	21.539	22.208
% of Turnover	*10%*	*13%*	*11%*	*11%*	*13%*	*15%*	*17%*	*17%*	*17%*	*17%*
IMS										
Turnover	122.962	101.856	98.444	95.097	93.195	92.263	91.340	91.340	92.254	93.176
COGS	(75.448)	(56.362)	(57.013)	(56.921)	(55.321)	(54.074)	(52.885)	(52.722)	(52.771)	(52.825)
External supplies and services	(23.478)	(19.221)	(21.226)	(21.620)	(21.723)	(21.741)	(21.897)	(22.166)	(22.500)	(22.882)
Employee benefit expense	(18.950)	(16.536)	(16.913)	(15.486)	(15.641)	(15.638)	(15.908)	(16.169)	(16.668)	(17.170)
Other gains or losses	(1.346)	(3.431)	826	1.752	1.749	1.744	1.739	1.735	1.729	1.723
EBITDA	3.739	6.306	4.118	2.821	2.259	2.555	2.391	2.019	2.044	2.023
% of Turnover	*3%*	*6%*	*4%*	*3%*	*3%*	*3%*	*3%*	*2%*	*2%*	*2%*
Venture Capital										
Turnover	17.023	12.732	16.077	17.122	17.978	18.517	19.073	19.454	19.844	20.240
COGS	(10.819)	(6.930)	(9.057)	(11.245)	(13.310)	(14.633)	(16.125)	(15.899)	(16.185)	(16.917)
External supplies and services	(2.877)	(2.823)	(4.773)	(1.608)	(1.616)	(1.621)	(1.616)	(1.625)	(1.623)	(1.626)
Employee benefit expense	(4.160)	(3.434)	(3.408)	(2.344)	(2.357)	(2.360)	(2.359)	(2.353)	(2.353)	(2.349)
Other costs	(1.346)	(113)	713	(248)	(251)	(256)	(261)	(265)	(271)	(277)
EBITDA	(2.179)	(568)	(448)	1.677	444	(353)	(1.288)	(688)	(589)	(929)
% of Turnover	*-13%*	*-4%*	*-3%*	*10%*	*2%*	*-2%*	*-7%*	*-4%*	*-3%*	*-5%*
Novabase EBITDA	10.747	18.060	14.860	15.922	17.623	19.977	21.617	22.582	22.995	23.302

3. Appendix 3

Performance of 50 Economies according to IT industry:

	2013	
Economy	Rank	Score (1-7)
Finland	1	5,98
Singapore	2	5,96
Sweden	3	5,91
Netherlands	4	5,81
Norway	5	5,66
Switzerland	6	5,66
United Kingdom	7	5,64
Denmark	8	5,58
United States	9	5,57
Taiwan, China	10	5,47
Korea, Rep.	11	5,46
Canada	12	5,44
Germany	13	5,43
Hong Kong SAR	14	5,40
Israel	15	5,39
Luxembourg	16	5,37
Iceland	17	5,31
Australia	18	5,26
Austria	19	5,25
New Zealand	20	5,25
Japan	21	5,24
Estonia	22	5,12
Qatar	23	5,10
Belgium	24	5,10
United Arab Emirates	25	5,07

	2013	
Economy	Rank	Score (1-7)
France	26	5,06
Ireland	27	5,05
Malta	28	4,90
Bahrain	29	4,83
Malaysia	30	4,82
Saudi Arabia	31	4,82
Lithuania	32	4,72
Portugal	33	4,67
Chile	34	4,59
Cyprus	35	4,59
Puerto Rico	36	4,55
Slovenia	37	4,53
Spain	38	4,51
Barbados	39	4,49
Oman	40	4,48
Latvia	41	4,43
Czech Republic	42	4,38
Kazakhstan	43	4,32
Hungary	44	4,29
Turkey	45	4,22
Panama	46	4,22
Jordan	47	4,20
Montenegro	48	4,20
Poland	49	4,19
Italy	50	4,18

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NOVABASE RESEARCH NOTE

Recommendation: Buy

Target Price: 3,55

Share Price: 2.51

Upside: 41%

Market Cap: 92.4 M

Number of Shares: 31.1 M

COMPANY INFORMATION:

Novabase (NBA:LS)
Primary Exchange: Euronext Lisbon Stock Exchange
Industry: IT Services
Customers sectors: Telecommunications, Financial Services and IT Services
Shareholders: HNB – SGPS, SA – 25%; Partbleu, Sociedade Gestora de Participações Sociais, SA – 10,13%

ORVERVIEW:

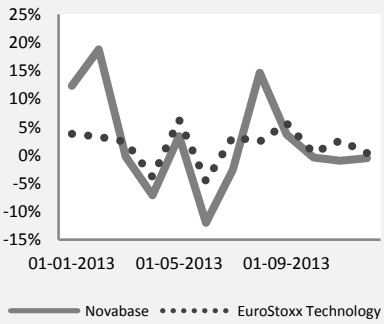
Novabase had been gathering the fundamental tools, to continue having a successful role in the Portuguese IT industry.

Despite of the difficulties of finding new partnerships in Portugal due to the domestic pressure, Novabase is reaching positive results.

In 2013, Novabase had strengthened its position in Africa with the official inauguration of operations in Mozambique.

Consequently, at the end of 2013, Novabase had reached a turnover of 216 Million, representing a growth rate of 2% compared to the homologous period.

The level of EBITDA had decreased, due to the global financial crisis. Even though, the value of EBITDA represented 8% over the total turnover.



PROSPECTS FOR THE FUTURE:

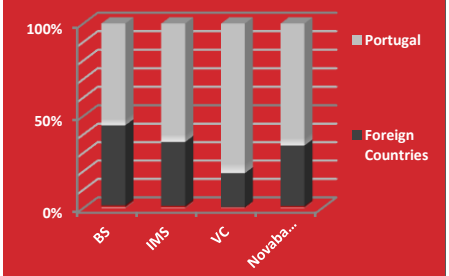
Novabase is constantly searching for new partnerships and opportunities. This strength on maintaining the leader positioning in the IT Portuguese market, will lead Novabase to increase its revenues.

The international operations represented 35% in the end of 2013, compared to 29% in the homologous period. The perspective is to continue increasing the foreign turnover, acquiring partnerships in Gana, South Africa and Istambul.

	E 2014	E 2015	E 2016
Turnover Growth rate (%)	0,8%	1,5%	1,8%
BS	4%	4%	4%
IMS	-3%	-2%	-1%
VC	6%	5%	3%

Turnover/EBITDA (%)	8%	9%	9%
BS	12%	14%	15%
IMS	5%	5%	3%
VC	-2%	-1%	-2%

TURNOVER DISTRIBUTION (%)



DISCOUNTED CASH-FLOW VALUTION:

Thousand Euros	E 2014	E 2015	E 2016	E 2017	E 2018	E 2019	E 2020
EBITDA	15.922	17.623	19.977	21.617	22.582	22.995	23.302
EBIT	9.503	11.082	13.362	14.674	15.457	15.691	15.795
EBIT (1-T)	6.890	8.034	10.088	11.079	11.670	11.846	11.925
CAPEX	-2.317	-2.351	-2.394	-2.439	-2.481	-2.534	-2.588
Depreciation and Amortization	5.966	6.014	5.920	5.711	5.535	5.392	5.307
Change in Net Working Capital	1.512	1.328	724	760	713	897	920
Free Cash Flow to the Firm (FCFF)	9.026	10.368	12.890	13.590	14.011	13.807	13.724

Novabase Enterprise Value	148.260.945
- Market Value of Debt	-30.416.089
- Non Controling Interests	-11.522.000
+ Fundo Capital Risco NB Capital	3.076.000
+ Financial assets at fair value through profit or loss	1.256.000
Shareholders' Equity	**110.654.856**
Number of shares outstanding at 31st December 2013	31.132.490
Price per share	**3,55**

Cost of Equity (K_E)	12,30%
Cost of Debt (K_D)	4,20%
D/V	27%
E/V	73%
T	23%
WACC	9,90%

MULTIPLES VALUATION:

Company Name	Industry Group	Country	Expected growth of Revenues - Next 2 years	Expected growth in EPS - Next 5 years
Ausy SA	Computer Services	France	2,99%	12,80%
Alten SA	Computer Services	France	2,97%	4,13%
Indra Sistemas, S.A.	Computer Services	Spain	1,80%	6,16%
Groupe Steria SCA	Computer Services	France	1,15%	8,13%
Cap Gemini S.A.	Computer Services	France	0,86%	10,10%
Average			1,95%	8,26%

Company Name	Price to Earnings	PEG	EV/EBIT	EV/EBITDA
Ausy SA	9,35	0,73	10,8	6,99
Alten SA	14,22	3,44	10,49	8,56
Indra Sistemas, S.A.	15,71	2,55	10,77	10,83
Groupe Steria SCA	13,29	1,63	14,44	7,02
Cap Gemini S.A.	21,85	2,16	9,34	8,82
Average	14,88	2,10	11,17	8,44
EV based on Peer Group	137.652.606	164.130.487	95.082.295	137.309.735,91
Price per share	4,42	5,27	3,05	4,41
Average Price per share	4,29			

RECOMMENDATION:

The target price per share is 3,55€, given by the DCF valuation. It reflects the expected increase of the revenues and earnings, as result of the higher efficiency and the increase of partnerships in Africa. Thus, our recommendation is to Buy.